R E P O R T R E S U M E S

ED 018 505 UD 005 092

CULTURALLY DISADVANTAGED CHILDREN OF HIGHER POTENTIAL, INTELLECTUAL FUNCTIONING AND EDUCATIONAL IMPLICATIONS.

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PUB DATE SEP 65

EDRS PRICE MF-$1.00 HC-$8.08 200P.

DESCRIPTORS- *DISADVANTAGED YOUTH, *ABLE STUDENTS, *SOCIOECONOMIC STATUS, *INTELLIGENCE, *PSYCHOLOGICAL CHARACTERISTICS, MIDDLE CLASS, SELF CONCEPT, EDUCATIONAL RESEARCH, DATA, PSYCHOLOGICAL TESTS, CASE STUDIES (EDUCATION), CREATIVITY, LANGUAGE ABILITY, ACADEMIC ACHIEVEMENT, SOCIAL CHARACTERISTICS, EMOTIONAL ADJUSTMENT, STATISTICAL ANALYSIS, COMPARATIVE ANALYSIS, EDUCATIONAL PLANNING, ATTITUDES, PARENT ATTITUDES,

A RESEARCH STUDY WAS CONDUCTED TO DETERMINE THE PSYCHOEDUCATIONAL CHARACTERISTICS OF HIGH-POTENTIAL CULTURALLY DISADVANTAGED CHILDREN AND THE IMPLICATIONS OF THESE CHARACTERISTICS FOR AN EFFECTIVE EDUCATIONAL PROGRAM. INTELLIGENCE TESTS WERE ADMINISTERED TO CHILDREN FROM SIX ELEMENTARY SCHOOLS WITHIN A DISADVANTAGED SCHOOL DISTRICT, AND THE 203 STUDENTS WHO SCORED WITHIN THE TOP 20 PERCENT OF THIS POPULATION WERE SELECTED AS AN EXPERIMENTAL STUDY GROUP. DATA ON THE CHILDREN'S INTELLECTUAL AND PSYCHOLINGUISTIC ABILITIES, CREATIVITY, AND ACADEMIC ACHIEVEMENT WERE OBTAINED FROM STANDARDIZED TESTS AND FROM A DIAGNOSTIC CASE STUDY OF EACH CHILD. DATA WERE ALSO GATHERED AND ANALYZED ON SUCH SOCIAL-EMOTIONAL FACTORS AS (1) THE CHILD'S PERCEPTION OF SELF, PEERS, PARENTS, AND TEACHERS, (2) PARENTAL ATTITUDES, AND (3) FRUSTRATION. THE RELATIONSHIP OF THESE VARIABLES, AND THE CHARACTERISTICS OF THE STUDY GROUP AS COMPARED WITH THOSE OF STUDENTS IN THE TOP 20 PERCENT OF THE GENERAL POPULATION (NORM GROUP), WERE STUDIED. THE DETAILED FINDINGS OF THE RESEARCH ARE PRESENTED AND DISCUSSED AT LENGTH. (LB)

Culturally Disadvantaged Children of Higher Potential: Functioning Limitations

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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UD 005 092

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SEPTEMBER, 1965

ACKNOWLEDGEMENTS

This research project was made possible under the provisions of Senate Bill 749 of the S venty-Third General Assembly of the State of Illinois which allocated funds under legislative provisions for the gifted. The legislators of the State of Illinois and the Governor of Illinois, Otto Kerner, are to be commended for their foresight in passing legislation that will enable public schools to more adequately provide for gifted children, our potential leaders, that will give researchers opportunities to study some of the more crucial problems pertaining to the gifted; and that will encourage colleges and universities to provide programs to train leaders in the field of the gifted.

We are particularly appreciative of the leadership provided by the Superintendent of Public Instruction, Ray Page, and the Assistant Superintendent, John H. O'Neil, in formulating the structure, policies, and procedures for carrying out the intent of the law. A large measure of credit for the success of this project is due to the professional guidance of the State Director, Program Development for Gifted Children, Wayne Newlin, his able staff, and the State Advisory Committee on the Gifted.

The approval of the Champaign Board of Education, endorsing the staff's conducting this research, reflects the quality of leadership of the board members; the chief administrator, Dr. E. H. Mellon, Superintendent of Schools; and Dr. Robert L. Cooley, Assistant Superintendent for Instruction. It is apparent that there is a recognition that a quality school system needs to engage in research activities to gain new knowledge for improving its instructional program.

The excellent cooperation of the principals from which the subjects were drawn, Odelia Wesley, Washington School; Clara Shinker, Columbia School; Henry Barnard, Marquette School; and Ruth Calimese, Gregory School, facilitated the carrying out of the research study. A special thanks, too, goes to the teachers in these buildings who so willingly cooperated in releasing children for psycho-educational studies. Thanks are also extended to the coordinator of the project, Henry Barnard, and to the consultant for the project who gave long hours of their time in interpreting the total project to parents so that their cooperation could be obtained. We also wish to express our thanks to the parents of the subjects whose cooperation was needed to obtain the research data.

Without the help of the two competent social workers, Ann Rivers and Irving Faust, and their Supervisor, Dorothy Rowand, the social history data would not have been available for the comprehensive case studies.

Special thanks are extended to William Rogge, Director of Demonstration Projects, Program Development for the Gifted, Assistant Professor, University of Illinois, who was, at the time the proposal was written, Research Consultant, Special Study Projects for the Gifted, State of Illinois, for his review and helpful suggestions relative to the proposal.

The findings reported in this publication represent analysis of objectives on psycho-educational data gathered on elementary age culturally disadvantaged children with higher potential. This data was supplemented by comprehensive case studies.

We also appreciate the time Barbara Kuykendall, intern psychologist from George Peabody Teachers College spent in assisting with statistical work.

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Chapter I
PROBLEM

Raising the level of functioning of the culturally disadvantaged, especially those of school age, is recognized as one of the major educational problems of today. This growing concern for improving the educational offerings for these children has resulted in legislation at both the federal and state levels as well as contributions from fund granting agencies to encourage state departments and local school systems to initiate innovations for helping these children develop their potential.

Although culturally disadvantaged children have always been in the public schools, the concern is becoming greater because of the complexity of the economic structure. It has now become a necessity rather than merely an advantage for individuals to have an education to be productive members of society.

When one notes the statistics on the growing numbers of culturally disadvantaged attending the public schools, the problem appears to be even more critical and disheartening. The problem is most apparent in growing urban areas. In 1950 about one child out of ten attending the public schools in the nation's fourteen largest cities was considered culturally disadvantaged. In 1960, the figure had risen to one out of three. The urgency of the problem is underscored by the fact that not all of the nation's underprivileged, disadvantaged and deprived children--the Mexican-American and American Indian of the southwest, the Appalachian Hill-Folk, the southern Negro, and countless others--are represented in these figures (Harrington, 1963) and (Shaw, 1963).

At one time the concept of "giftedness will out" was generally accepted. "Everyone knew that cream would rise in fresh milk, and everyone knew that high intellectual capacity in human society had the same ingredients of self-rising fat globules." (Bond, 1960) In recent years, our concepts regarding talent have changed radically. Today we have come to realize that potentials, if not nurtured, may never reach fruition. Loss of talent is an intolerable loss to society. From the standpoint of human rights we have an obligation to make it possible for each individual to develop his potentials to the fullest.

In the foreword of The Culturally Deprived Child (Riessman, 1962), Watson makes the following statement:

> In the current flurry of concern over the gifted, most well-to-do families are pleased to think of their own children as being given well deserved special consideration. Teachers are gratified because 'higher standards' are in vogue. Yet the great reservoir of undiscovered and underdeveloped intellectual talent in America is not in upper-class or middle-class neighborhoods. While the proportion of high IQs may be lower in underprivileged areas--this is a slippery question, as Professor Riessman demonstrates--the actual numbers of intellectually very bright children in poor homes are far in excess of those to be found in the relatively few homes of business and professional leaders.
>
> What is needed now is some fresh approach to the discovery and cultivation of the talents that undoubtedly exist among millions of children from unpromisory backgrounds. The usual tests won't identify them; the usual teachers won't inspire them.

Eells, et al (1951) point out that the most important face about our low economic groups is that they include more pupils with high IQs than is true of the groups in the middle economic brackets. He further states that one important way of coping with the problems of shortage in industry of high level personnel is to recruit from the working class level and elevate them to the professions at the middle class level.

The literature abounds with descriptions as to what the culturally disadvantage child is like. Oftentimes the determination of these characteristics is based largely on observation rather than on more percise assessment using research tools. In addition, the characteristics reported refer to groups of individuals and are not all necessarily applicable to an individual.

The authorities in the field of the culturally disadvantaged recommend ways by which the school can improve their educational offerings for these children. Such recommendations have not usually been tested on a research basis.

Essentially two basic strategies for educating the culturally disadvantaged have been recommended. One places primary emphasis on helping the child catch up to middle class standards through a bombardment of "cultural" stimulation. With this approach the environment and the child's way of life are viewed almost entirely in negative terms. The other strategy places major emphasis on the culture of the child and how certain characteristics of this culture affect his learning and achievement. The strengths of the child's culture and style are considered primary. The approach assumes that the school culture is to some extent malleable to the needs and style of the child. The more recent educative trends seem to be leaning heavily in the direction of the latter strategy. In order to be effective in the education of the culturally disadvantaged, an understanding of the child within the framework of his particular culture is necessary and remedial action based on this understanding seemingly is required. A third approach and the one adopted as the basis for this study is concentration on the identification of learning deficits and sequential programming designed to help the child overcome deficits and to accelerate his rate of functioning to the point that he is operating at a level comparable to his more advantaged peers.

An extensive persual of the literature reveals that research studies devoted to the culturally disadvantaged gifted child are nonexistent. Yet, in terms of developing the nation's intellectual resources the need of educational programming for these children is probably more urgent than for the "average" culturally disadvantaged child.

The primary purpose of this study was to investigate the strengths and weaknesses of culturally disadvantaged children through an intensive psycho-educational diagnosis to enable educators to design an educational program to enhance the intellectual functioning of culturally disadvantaged children with higher potential.

In an attempt to present a description of culturally disadvantaged children with higher potential, the analysis of the data obtained from this study proceeds in two ways: (1) statistical analysis of the data and (2) incorporation of the data in a discussion by means of a case study approach.

Chapter II

REVIEW OF RESEARCH

A careful review of the literature revealed no studies that exclusively focused on subjects who were identified as the top 20 per cent of a population of culturally disadvantaged children. Although a number of studies have indicated that the culturally disadvantaged children from low socio economic homes differ in many respects from children of middle and upper class homes, few attempts have been made to delineate specific psycho-educational strengths and weaknesses with a view toward initiating a program designed to ameliorate specific weaknesses of these children since most schools provide programs that are geared primarily to the middle class child, it is crucial that school develop appropriate curriculum offerings for the culturally disadvantaged.

The research studies that seem to be relevant to this study are reported under the following headings: (1) intellectual abilities, (2) creativity, (3) psycholinguistic abilities, (4) achievement, (5) social and emotional.

Intellectual Abilities

Numerous studies have been undertaken investigating the relationship between performance on standardized intelligence tests and cultural-economic factors. Jones (1954) in an extensive review of the literature, reported studies revealing positive relationships between mental scores of children and such variables as educational level of the parents, socio-economic status of the family, parent occupation, income, dwelling area, "hospitalism" (institutional children), and educational opportunity.

Havighurst (1961) in a more recent study of all sixth grade children in the public schools of a medium sized midwestern town, found that the upper and upper-middle social classes produced 1.8 times as many children in the upper quarter of the IQ distribution as they would have if all social classes had been equally represented. The lower-lower class produced only .4 as many.

Herrick (1951) reported that intelligence test scores for children from professional families averaged from 15 to 25 points higher than for children of unskilled laborers.

In four investigations (Murray, 1947; Havighurst and Breese, 1947; Havighurst and Janke, 1944; Janke and Havighurst, 1945) using Warner's social class concepts to measure social status, corroborated the findings of other studies which indicated a steady decrease in the intelligence test performance of social class level.

The above findings are consistent with results obtained in similar type studies (Manley, 1963; Hindley, 1961; Migliorino, 1960; Palermo University, 1962) conducted outside of the United States in which positive relationships between intelligence test performance and socio-economic status were revealed.

Clark and Clark (1950) identified 59 institutionalized adults and adolescents classified as mentally retarded by Wechsler IQ scores as coming from culturally "adverse" or "not adverse" homes. The subjects were retested on the Wechsler test after an average of 27 months from the first administrations. It was found that differences between mean IQ gaines of the group from adverse early environments when compared to the gains manifested by the remainder

of the subjects were significant in favor of those coming from "bad homes". The authors interpret their findings as "suggesting that an environment which is really antagonistic towards the child retards mental development for many years. Later, however, after removal from such conditions this retardation begins to fade, and IQ increments occur, often at ages when mental growth is commonly assumed to have ceased." The above hypothesis was further validated by a similar study carried out on another group classified as mentally defective. The obtaining of comparable results led the authors to conclude that "intellectual retardation among such deprived people as have been studied here is not necessarily a permanent and irreversible condition."

In an earlier study, which has since become a classic, Klineberg (1935) found that the scores on the Stanford-Binet and the National Intelligence Tests using approximately 3,000 southern-born Negro children who had migrated to New York increased with increasing length of residence in New York. In time, the intelligence test scores of southern-born Negroes tended to approximate those of New York-born. It was concluded by the author that the superiority of northern Negroes to southern Negroes is not a factor of selective migration but due to more stimulating environmental factors in the North.

Lee (1951) obtained findings similar to Klineberg in a study involving 930 Negro migrants from the south conducted in Philadelphia using the Philadelphia Test of Mental and Verbal Ability and, with some children, the PMA and Minnesota Paper Form Board. Test scores and length of northern residence were highly related with the exception of the PMA Memory Test. The results were considered as supporting the Klineberg hypothesis, that more stimulating environmental factors in the North have the effect of raising intelligence test scores of southern-born Negroes.

In an experiment conducted by Teahan and Drews (1962) the WISC was administered to 26 northern Negroes and 24 southern Negroes referred by their schools for an intellectual evaluation. There were no differences between chronological age of the groups. A comparison of the Verbal and Performance IQs obtained by southern Negroes revealed a statistically significant difference with the southern group being especially deficient in the Non-verbal area. No significant differences were found between Verbal and Performance IQs of the northern Negroes who actually received slightly higher scores on the Non-verbal than the Verbal tests. Both northern and southern Negroes made their highest scores on the Comprehension and Similarities subtests while low scores were obtained by both groups on the Vocabulary and Block Design Tests. The authors pointed out that their findings indicated a need for exercising great caution in utilizing Non-verbal IQs when cultural deprivation is suspected.

Machover (1943) compared a group of 50 southern Negroes who had migrated to New York after the age of sixteen with a group of New York-born Negroes matched with them for scores on the Comprehension and Similarities subtests of the Wechsler-Bellvue scale. The Negroes from the south were most inferior to the New York Negroes on the Digit Symbol, Block Design, and Picture Arrangement subtests.

Tyler (1956) postulates that the above combinations may represent a perceptual defect with the culturally restricted group not getting the meaning of the stimulus material as clearly as the group with the better educational

background. Tyler raises the possibility of early perceptual deprivations adversely effecting intellectual development. She indicates the need for a more penetrating analysis of specific intellectual differences and their origins, keeping in mind the concepts of Hebb and Piaget.

Higgins and Silvers (1958) compared the results of the Stanford-Binet and the Colored Raven Progressive Matrice IQs for children of low socio-economic status. The subjects were 789 pupils ranging in age from seven to nine years. There was no significant difference in Binet IQ between the 349 Negroes and 440 white subjects. It was found that, for the Negro group, the Non-verbal CRPM scores were significantly lower than their Verbal scores. No significant difference was found for white children between the Stanford-Binet and CRPM scores. The authors point out that the CRPM is not a general intelligence test and may be measuring a very specific skill. They also suggest that tests constructed with many Non-verbal items may be unfair to Negro children.

Bogen (1952) conducted a study on the effect of perceptual training on group IQ scores of elementary pupils in rural schools. Twenty-five rural white and 29 rural Negroes in grades 1-4 were provided with stimulating visual materials (geometric designs and puzzles, jigsaw puzzles and word puzzles) involving reasoning ability of a perceptual nature. Both groups showed significant gains over control groups in total IQs, California Non-language scores, and Spatial Relationships and Logical Reasoning subtests of the CTMM. Both experimental groups also increased their scores on the Otis Quick Scoring Mental Ability Test - a largely verbal instrument. The author suggested that training in visual perception might assist rural pupils to operate more effectively in academic situations requiring perceptual discrimination such as reading, arithmetic and spelling. The results also indicate, the author states, that scores on group IQ tests may underestimate the mental ability of rural pupils and that rural elementary school children may respond positively to a more challenging educational program.

In a study of 543 urban children stratified by race, social class, and grade level (1 and 5), Deutsch and Brown (1964) administered appropriate levels of the Lorge-Thorndike intelligence battery in an investigation of factors that influence the development of intellectual functioning in children. It was discovered that:

1. Negro children score lower than white children of similar SES level and Negro-white differences increase at each higher SES level.

2. Children from father absent homes scored significantly lower than children in intact families (this finding was more marked at grade five than grade one).

3. At the fifth grade level, children who had attended preschool scored significantly higher than those who had not. Although not statistically significant at first grade, the above trend was evident.

The authors concluded that as social-class level increases, the influence of [illegible] manifests itself and deprivational influences have greater effect on later developmental stages than on earlier ones.

Price (1962) studied white and Negro children of three age levels - six, ten, and fourteen. Although the average IQ of white children was higher than that of the Negro children at all age levels, the difference became more pronounced as age increased. Rorschach responses of Negro children were more like those of younger white children. The author concluded that differences in intelligence, motivation, and personality were essentially the result of environmental conditions.

As a result of extensive testing to gather normative data on intelligence and achievement test results of Negro children, Kennedy et al, (1963) gathered data on 1800 children in five southestern states. It was found that Stanford-Binet IQ scores were negatively correlated with age and significantly different by socio-economic level. The mean IQ of the five year-old group was 86 as compared with a mean IQ of 65 for the thirteen year-old group. Children identified as upper-level with respect to socio-economic classification earned a mean IQ of 105 while those of lower socio-economic level attained a mean IQ of 79. The authors report that, "Analysis of Binet item difficulty and biserial correlation item analysis showed that abstract verbal items appear at too low an age level in the test. On the other hand, rote memory, days of the week, making change, digits, snd sentence memory items are placed too high on the scale. There does not seem to be any exceptionally high performance ability in contrast to low verbal ability for this sample."

Gray and Klaus (1963) assessed the effect of early training on culturally deprived Negro children. The experimental subjects consisted of two groups of approximately 20 culturally deprived Negro children. One group received two summers of school program and home contacts and the other attended a school program for only one summer. Results of pre- and post- testing over a fifteen month period revealed a significantly great improvement for the experimental groups on the Stanford-Binet and Peabody Picture Vocabulary Test while the control group registered a decrease. The experimental groups gained an average of 10.1 and 5.1 IQ points, respectively, while the two control groups showed an average decrease of 5.1 and 2.5 IQ points over the same period of time.

Kirk (1958) reports a study relating the influence of nursery school type experience to the intelligence of 81 retarded children between three and six years of age. Fifteen of the children attended an institution nursery school and 28 non-institutionalized children were matched for place of residence (institution or not institution), IQ, and socio-economic status with controls who attended no nursery school. It was found that the general effect on all children provided with nursery school experience was positive. Thirty of the 43 experimental subjects registered IQ score gains ranging from 10 to 30 points. Increase for the experimental group was significantly higher than for the controls. The children retained these gains as evidenced by a follow-up study conducted three to five years following nursery school experience.

An article on the nature of cultural bias in intelligence tests was published by Eells (1953). He takes the position that "most presently used intelligence tests.... are so constructed and so administered that scores on them are influenced by the cultural backgrounds of the children taking the test in such a way that children from certain kinds of cultural backgrounds receive scores that are not accurate reflections of their basic

intelligence." Eells believes that although tests may be useful in predicting a child's ability to do school work, they should not, because of cultural bias, be considered to tap innate intellectual potential. Eells states that culture fair tests must be composed of items dealing with materials common to the various subcultures which use common language and stimulate equal degress of interest and motivation in subjects tested from the various subcultures.

Fowler (1957) contrasted pupil performance on conventional and culture-controlled mental tests. The California Short Form Test of Mental Maturity, Detroit Alpha Test, Henmon-Nelson Tests of Mental Ability, 2 IPAT Culture-Free Tests (Cattell) and the Davis-Ells Games were administered to 201 white American non-ethnics, 80 Negroes, and 94 Polish boys and girls. Pupil-test performance of the 355 ten year old students was compared with sex, race, ethnic background, socio-economic status, and teacher estimate of pupil intelligence. The findings revealed that culture-controlled tests did not show differences between the sexes, but girls were superior to boys on the Henmon-Nelson and Detroit Alpha. Negro pupils generally scored lower than either of the two white groups, and socio-economic status was positively related to test performance with the exception of the Negro boys and Polish group. For the Negro and Polish boys lower socio-economic status, as measured by the Warner Index of Status Characteristics, was associated with a higher score on conventional and a poorer score on culture-controlled tests. The type of test used did not greatly alter the obtained IQ. Teacher estimate of measured pupil intelligence was found to correspond more closely with conventional tests.

In a study of the influence of social status, practice, motivation, form of test, and manner of presentation conducted by Haggard (1954), a total of 671 eleven-year old children from a midwestern city of 115,000 was subdivided into 28 subgroups, matched on social status (high and low - using the Warner Index), chronological age, school grade and IQ, and administered an Initial Test of Standard Intelligence. The experimental condition involved Practice (motivated, unmotivated, and none) for a 50 minute period over three days, and Retest (motivated and unmotivated) in which the Initial Standard Test and Revised Test minimizing middle-class bias were used. The results indicated:

1. Practice facilitated gain in performance of the high status subjects who took the Standard Retest, and gain of the low status subjects who took the Revised Retest.

2. Low status subjects, when motivated, did significantly better on the Standard Retest than those not motivated.

3. Subjects from both social status groups made much greater gains on the Standard Retest. The low status subjects showed the greater gain.

4. Subjects from both status groups performed better on a Revised Initial Test than on the Standard Initial Test.

5. When the effects of all treatments were combined, there was no significant difference between the two status groups in their ability to learn to solve intelligence test problems, although the various experimental treatments and conditions influenced the retest scores differently.

6. The mere revision of the test items was not sufficient to reduce the difference in performance between the groups. The marked discrepancy between them was only reduced when the conditions of Motivation and Practice were also present. All statistically significant differences attributable to Practice and Motivated Retest occurred in connection with the Standard Retest. The Revised Retest was not influenced by such condition.

It was concluded that revision of intelligence tests to remove cultural bias was not enough to obtain adequate measures of mental ability. Performance can be improved by highly motivating the group, developing efficient test taking techniques, and establishing good rapport between subject and examiner.

In a study investigating the effect of money vs. praise upon the reliability and obtained scores of the Revised Stanford-Binet Test, Klugman (1944) tested 38 white and 34 Negro school children (ages 7-14) with alternate forms of the 1937 Stanford-Binet after introducing money and praise incentives. Children were divided on the basis of race, sex, age and father's occupation for investigating the effects of incentives. No significant IQ difference was found between Negro and white subjects on initial testing. All subjects were tested with one form of the Stanford-Binet and retested a week later. All subgroups studied made higher mean scores on the money incentive tests than on praise, but differences were not statistically significant. There was a significant superiority of the scores of Negro children tested with money incentive over Negroes tested using praise as an incentive. Although there was almost no difference between whites and Negroes when money was the incentive, the whites showed superiority when praise was the incentive.

Pettigrew (1964) in a summary of the relevant research on Negro-white intelligence concludes that opinions of modern psychologists overwhelmingly support the notion that mean differences observed between Negro and white children on intelligence tests are largely the result of environmental rather than genetic factors, and that intelligence is a plastic product of inherited structure developed by environmental stimulation and opportunity. He concludes that the severely deprived environment of the average Negro child can lower his measured IQ in two ways:

1. It can act to deter his actual intellectual development by presenting him with such a constricted encounter with the world that his innate potential is barely tapped.

2. It can act to mask his actual functioning intelligence in the test situation by not preparing him culturally and motivationally for such a middle-class task.

Studies on intelligence as related to socio-economic status suggest the following:

1. Culturally disadvantaged children do not score as high on standardized intelligence tests as do their middle-class peers.

2. "Culture fair" and "performance" tests have not been effective in tapping the innate potential of the culturally disadvantaged.

3. Deficits as measured by intelligence tests seem to be cumulative in that IQ scores tend to decrease as the child grows older if no introvention takes place.

4. The effects of cultural deprivation on certain aspects of intellectual functioning are not irreversible. While adverse cultural conditions seem to depress intellectual development, these effects can be ameliorated by environmental changes which stimulate intellectual development.

Creativity

A survey of the literature in the field of creativity reveals an accelerated interest over the past two decades which have culminated in voluminous research in this important area of study. While extensive research has been undertaken in this area, few studies (or theoretical formulations) have definite bearing on the subject of creativity with the culturally disadvantaged child. A recent study by Davidson et al (1962) of "good" and "poor" achievers in the lower class population of a Harlem school found ample evidence of creativity, especially among the poor achievers. This in itself calls attention to the need for investigation of the nature and development of such abilities in this segment of the population.

Torrance (1962) and his associates at the University of Minnesota investigated the creative thinking abilities in elementary and secondary school children. They report tentative growth curves for such abilities in children of the first six grades based on cross-cultural evidence. Three nonverbal and six verbal tasks were used for assessing originality of thinking in these studies. On the bases of these studies, there is evidence that the intellectual abilities labeled "creative thinking" do not follow the same course of development as other such abilities. In the children of American middle-class culture, there were specific periods of decline rather than growth at about ages 5, 9, 13 and 17 with the most acute decline at about age nine or the fourth grade. A period of recovery occurs in the fifth grade, especially in girls but this recovery is largely in fluency and not in originality. Recovery in originality was found to come about largely in the sixth grade. After a decrease in the seventh grade with a recovery in the eighth, growth is continuous until the eleventh grade where a peak is reached.

The same or similar tests were given to a number of other cultures -- Australia, Germany, India, Samoa and groups of southern Negro. The other cultures did not show the same kind of developmental curve which suggests that drops in the developmental curve in the American middle-class sample was due to cultural factors rather than any inherent characteristics emerging at the various ages. For example, in the southern Negro sample a slight drop occurred between the second and third grades but there was considerable growth between the third and fourth grades, a time when the middle class white population is showing a decline. The Samoan subjects showed no decline at all. Rather, Torrance found a very slow rate of continuous growth from year to year.

Torrance believes that cultural discontinuities in terms of new demands placed on the child is associated with drops in the developmental curves for the creative thinking abilities. At about age five many children are

inhibited in their thinking because of parental and teacher warnings to eliminate fantasy. At about age nine, where the most severe decline occurs, several things happen which would help explain the diminished originality responses in this American subgroup. For example, classroom activity becomes more organized and formal, emphasis is placed on correctness and neatness.

Iscoe and Pierce-Jones (1964) report a study in which ideational fluency and ideational flexibility scores were obtained from an Unusual Uses Test given to 267 Texas white and Negro school children aged five to nine. Although all subjects were of lower socio-economic level, there was a significant difference in socio-economic level between white and Negro children in favor of the white children.

Results showed that white children tended to excel Negro children in ideational fluency only at the youngest of the five age levels studied. The scores of the Negro children, however, tended to excel those of the white children at the middle age levels and to equal those of white children at the oldest age level. The mark increase in fluency between the five year-old and six year-old Negroes was thought to be a result of environmental factors. The Negro five year-olds represented the lowest socio-economic level of the entire sample and were taken from an over crowded nursery school. In contrast, six year-olds attended a school in which advantages might have contributed to the results obtained.

No significant overall age, race, or race by age differences in response flexibility were obtained. The superiority of the Negro children in fluency did not carry over to flexibility measured by the number of categories of usage. Despite the greater number of fluency responses for the Negro children the number of categories they used were no larger than those of the white children. There are strong suggestions from the results that the originality of uses proposed for familiar objects (in this study a newspaper, table knife, cup, and clock) is related to the cultural background of the subjects. For example, a newspaper has traditionally been the all-purpose material of the underprivilged.

Iscoe and Pierce-Jones (1964) also investigated the relationship of intelligence and divergent thinking (ideational fluency). Their findings are as follows:

1. Consistent with previous studies (Getzels and Jackson, 1959, 1961; Torrance, 1961), a low but significant positive correlation between scores on the WISC and divergent-thinking for both white and Negro children was obtained. It might be noted that Getzels and Jackson (1951) and others (Kornes, et al, 1961; Torrance, 1959) have found evidence which suggests that "highly creative" children achieve as well in school as children who are brighter but not so "creative".

2. Among Negro children, ideational fluency was significantly [illegible] correlated with Information, Similarities and [illegible] subtests of the WISC while among white children, [illegible] positive correlations occurred between ideational [illegible] Information and Vocabulary subtests of the WISC. Based on results of a factor analytic study of the Wechsler-

Bellevue Intelligence Scale by Davis (1956) these investigators suggest that a verbal comprehension factor may be involved in divergent thinking measured in terms of verbal response indicators of ideational fluency.

3. Among Negro children, divergent thinking scores significantly correlated with the Picture Arrangement subtest which, the authors point out, may measure some more basic visualization ability factor according to Davis.

4. In white children, divergent thinking scores were significantly associated with Digit Span scaled scores and Block Design subtests of the WISC. According to Davis, these subtests may be related to a non-verbal reasoning factor.

Another significant finding of this investigation was the relationship between age and the developmental pattern of creative thinking abilities. The results do not support Torrance's (1962) findings indicating definitive periods of decline in the growth of such abilities.

Irving Taylor (Riessman, 1962) notes that the mental style of low income youngsters tends to resemble the mental style of one type of highly creative person. Taylor believes that disadvantaged children are not nearly so non-verbal as is generally thought but rather use words in a different way and are not as dependent on words for their sole form of communication as middle class children. At the same time he believes them to be imaginative at the verbal level. In investigations using word association tests, Taylor found that the responses given by disadvantaged children were often less conventional, more unusual, original, and independent. This suggested that they were more flexible and visual with language. Furthermore, it is Taylor's belief that the disadvantaged child tends to permit language to interact with more non-verbal means of communication, such as gestures and pictures, suggesting that these children are not restricted by verbal forms of communication. That is, they are considered to be less word bound, less bound in their thinking to the structure of language.

Taylor believes that their wide range of associations indicate a freer use of language, which may be an important attribute of one type of creativity. He contends that not only do studies of creative people indicate that they have greater "semantic flexibility", but also that they respond well to visual, tactile, and kinesthetic cues. In general, their non-aural senses seem to be especially acute. Taylor notes that this pattern resembles the mental approach of the underprivileged child in many respects. (Riessman, 1964, p. 192)

Riessman (1962) argues a "single-minded" or "one-track" creativity might well be found among many disadvantaged individuals. With this type of creativity, the individual often fixedly absorbes everything pertaining to his scheme or problem, possibly ignoring many areas of learning and thus, has important gaps in his knowledge. There may be a relentless pursuit of one line of thought or one problem over an extended period of time. According to Riessman the person who has one-track creativity is similar in some respects to Guilford's "divergent" type, characterized by much searching about and going off in various directions.

Summary

1. Creative abilities do not seem to follow the same developmental patterns as other facets of intellectual functioning.

2. Culturally disadvantaged children do possess many of the attributes believed to be associated with creativeness.

3. The school does seem to have an influence on the development of creative abilities among all SES groups.

4. There appears to be differences in creative responses relative to age and different cultures.

5. Language development may be associated with certain kinds of creativity.

Psycholinguistic Abilities

A review of the literature revealed only one study specifically with the culturally disadvantaged. This study was conducted with Negro children at the preschool level by Weaver (1963). The purpose of the study was to determine the psycholinguistic patterns of culturally deprived children and to evaluate the efficacy of a preschool training program in accelerating language development of culturally disadvantaged children.

The experimental children were given a 10 week summer training period while the control group remained in the home and had no special experience. Post test results indicated that the experimental subjects had significantly higher scores on Visual Decoding and Auditory-Vocal Test of Psycholinguistic Abilities (ITPA) than did control subjects. They were also higher on the total ITPA score. In both the experimental and control groups, the auditory vocal subtests were significantly lower than the visual motor subtests, and language scores were significantly lower than mental ages. The correlations between language age and mental age for the total group of experimental and control subjects was .83. The language age and mental age for the girls correlated .88, while the correlation was .81 for the boys.

Since mentally retarded children are often culturally disadvantaged, studies using the ITPA with this group of handicapped children seem to be relevant to this investigation. For example, Herman (1962) made a psycholinguistic analysis of three siblings in a family with a history of four generations of mental retardation. She evaluated the effects of a short period of training on the psycholinguistic development of one sibling and one unrelated child with a comparable psycholinguistic profile. The assests of these three children centered in the visual-motor areas and the deficits in the auditory-vocal area.

The two children who received remedial treatment made significant gains of approximately three years in language age. The sibling who did not receive remediation, however, also made significant gains on some subtests of the ITPA.

Another study with mentally retarded children using the ITPA is that of Smith (1962). The treatment program for the experimental group consisted of 11 weeks of training in groups of eight for three 45 minuite periods weekly. The purpose of the study was to evaluate the effects of a group language program aimed at increasing abilities of the subjects to decode (receive visual and auditory cues) to associate, and to encode (express verbally or through motor responses)linguistic symbols. During a period of time involving 33 sessions, the experimental group gained 6.75 months in mean language age and the control group had a loss of .44 months. This researcher found that neither IQ or initial language ages were significantly related to gains in language age.

Mueller and Smith (1964) made a follow-up study on the subjects of Smith's study (1962) and found that after a 12 month period there was no significant difference between the experimental and control subjects in psycholinguistic performance.

Semmel and Mueller (1962) found that the total language age on the ITPA obtained from 18 mentally retarded subjects with IQ's ranging from 20 to 80 correlated positively with all subtests (range .52 to .81). Mental age was also significantly correlated with all subtests (range .53 to .62).

Another study that has some relevance to this study is Hart's (1963) investigation with cerebral palsied children using the ITPA as one of the research instruments. This researcher was primarily interested in evaluating the effects of a language program on cerebral palsied children. It was his hypothesis that a sequential language program which focused on the language deficits of these children would significantly increase their language scores. As a result of these gains he also hypothesized that the experimental subjects would make more rapid progress in reading. As hypothesized, the experimental group did show a mean total language age gain of 12.3 months while the control group gained 1.1 months during the treatment period which consisted of seven weeks of training.

The Hall Word Recognition Test scores revealed that the mean gain for the experimental group was nine months while the control group gained only three months. Thus, the results on both the ITPA and Hall Word Recognition Test were highly significant.

John (1963) reported some consistent class differences in language skills among Negro children. He found that middle class children had better command of language relative to the classifactory and problem solving functions.

Irwin (1948) in his study of the speech of infancy, found that initial development was age related only, but during the second year language development revealed social class differences. Templin (1958) studied the relationship between socio-economic level and aspects of speech and discovered that the sentence length and complexity of sentence structure are related to socio-economic level. Bernstein (1958) also studied the speech of the lower class in England. He concluded their speech was more than different; it was deficient. Cohn (1959) states that simplification in language of the lower class makes it difficult for them to formulate intellectual generalizations.

Loban (1964) studied the language used by a stratified sample of children in the kindergarten and first six years of the elementary school. The study was initiated with 338 kindergarten children in 1952. At regular intervals during a period of eleven years, comparable samples were collected of their language. Samples of oral and written language and of reading were included. Two sub groups representing extreme deviations were selected from the total sample. One of the findings of this study was that the low group used more oral partial expressions and their sentence patterns were more incomplete than was true of the higher group. Also the group proficient in language employed the linking verb sentence pattern to a greater extent than did the low group. The child with less power over language, according to this study, was more dogmatic in his speech. It was also noted that these children had difficulty using more than one alternative. The high group made greater use of clauses and multiples than was true of the low group. It was found that there was an increasing use of subordinating connectives relative to chronological age, mental ability, language ability and socio-economic status. There was also a positive relationship between reading, writing, listening and oral language.

Bernstein (1960) in his study of language and social class points out that lower class children tend to use more informal language to mainly convey concrete needs and immediate consequences. Middle class children, on the other hand, tend to use more formal language and to emphasize the relating of concepts.

Deutsch (1963) states that current data in the Institute appear to indicate that differences in perceptual abilities and in general environmental orientation decrease with age while language differences seem to increase. He goes on to say that perceptual development may occur first and language growth and its importance to problem solving may come later. If this be true, according to Deutsch, then the child comes to school with major deficits in the perceptual rather than the language area. If the school continues to require a higher level of language skill without focusing on antecedent verbal preparation, the culturally disadvantaged child's language deficit may increase. Thus, the time to concentrate on the development of language antecedants would seem to be during the preschool years.

In a study of the language development of white and Negro preschool children in New York City, Anastasi (1952) found a significant correlation between sex and race, such that girls surpass boys among whites, while the reverse was true among Negroes.

Summary

1. Culturally disadvantaged children have deficits in psycholinguistic abilities.

2. It appears that a training program focused on amelioration of deficits is effective.

Achievement

Although the philosophy of equal educational opportunities for all has long been a national tradition and pride, studies conducted of social class in American communities have forced the conclusion that universal, free and compulsory education alone by no means guarantees the implementation of the above philosophy. Reports by Warner, Havighurst and Loeb (1944) Hollingshead (1949), Eells and Davis (1951) and others point out the existence of cultural differences within the general American society. Charters (1963) reports cultural variations sufficiently divergent to warrant considering them as sub-cultures within the society. Since American schools have long been oriented toward the child of upper or middle socio-economic status and values, it is becoming more and more recognized that schools are not providing adequate programs for certain children, particularly those coming from lower socio-economic backgrounds.

In a study of canalboat children in England, Gordon (1923) presented evidence that children with poor educational opportunities show drops in IQ as they grow older. Asher (1935) and Chapanis and Williams (1945) found similar results in studies of backwoods children in the United States.

Studies relating to academic achievement suggest that many students come to school unprepared by virture of their particular cultural values and life style. Smiley (1964) states: "Middle-class children come to school prepared to learn to read; lower-class children enter a setting which is foreign to them in goals, methods, and values. It is not surprising that reading comes off second best."

Sexton (1961) in her study of social class influence on placement, achievement, and persistence in the schools of a large midwestern city, illustrates the experiential disadvantages lower-class children may have and their relationship to scores on a widely used reading readiness test. She reports that the pictures utilized to asses the child's ability to recognize relationships between object, graphic symbol for the object, and name of the object often feature pictures of objects that slum children have never seen. Furthermore, their lack of experience with picture books at home -- even though the actual object may be familiar--may handicap them when presented in the form of a linear drawing.

In an investigation of the effect of stimulus familiarization on discrimination, Covington (1962) studied the differences in visual perceptual ability in children entering kindergarten. It was found that upper status children (parents had both had some college training) scored significantly higher than lower status children (parents had no training beyond high school) on a visual discrimination test. After 13 days of training, both groups improved their scores on the discrimination test while control groups registered negligible gains. The lower-status group's gain was significantly greater than that of the upper-status group. No significant difference was found between post-test scores of the two status groups. This study, then, demonstrates that differences in perceptual ability are likely to exist between children from different social classes.

Milner (1951) investigated certain parent-child interaction patterns as related to reading readiness of first grade children. All high scorers but one (N = 42) were from middle and upper-class families while all low scorers but one were from lower social classes. Interviews with mothers and children suggested that the high scorers had a much richer verbal home environment than the low scorers.

Results of studies by Irwin (1948), Templin (1958), and Deutsch (1964) suggest a relationship between verbal or language development and socio-economic status. Language retardation appears to develop around the second year and the deficiency seems cumulative, at least through grade five. Deutsch (1963) notes that if language is considered as a prerequisite to concept formations and problem solving, then the deficit has a tremendous effect on all levels of learning.

A New York City investigation (1955) comparing mean reading scores for third, sixth, and eighth grade students from lower and middle-class neighborhoods revealed that at all levels studied the reading test scores of children in white, higher income schools were above grade level while the scores of pupils in the lower socio-economic Negro and Puerto Rican schools were below grade level. At each testing point mean scores for the lower-class children fell further below grade level and below the mean of the white higher income group.

Sexton (1961) found lower income children's scores to be most depressed on reading subtests while their scores on the work skills and arithmetic sections were, relative to their composite scores, better than those of upper income groups.

In an investigation of social class differences in arithmetic concepts of kindergarten children Montague (1964) administered the Arithmetic Concepts Inventory to 51 children of low socio-economic status and 31 children of high socio-economic status. Lower socio-economic children scored lower on the arithmetic concepts test and a significant difference was found between classes on total score.

In a study of the relationship of SES to vocabulary, reading comprehension, arithmetic skills, problem solving, and composite achievement test scores, Hill and Giammatteo (1963) administered the Otis Quick-Scoring Mental Ability Test, Iowa Tests of Basic Skills, and Scott-Foresman Reading Tests to 223 third grade children from western Pennsylvania. Socio-economic status was determined by an interview sheet. Correlation suggested a relationship between SES and all areas of school achievement measured. By grade three, children from the upper SES group were ahead of the low SES group by eight months in vocabulary, nine months in reading comprehension, six months in arithmetic skills, and eleven months in problem solving. Average composite scores showed seven months difference between high and low SES groups. A significant relationship was found between SES and subtests of the individual reading tests at grade one. Sensory imagery and phonic analysis correlated the highest with SES.

Similar relationships were found in a study by Kennedy et al (1963) where the California Achievement Test was administered to 1800 elementary school children in the southeastern United States. Results showed a trend of proportionate decrease in achievement level as socio-economic status declined.

Currey (1962) studied the effect of socio-economic status on the achievement of children at the sixth grade level. Three hundred and sixty sixth grade children from a large city in the southwestern United States were matched in terms of IQ scores on the CTMM, divided into three SES levels

determined by a parent questionnaire and administered the California Achievement Test. In the high intelleigence group, no significant differences were found in scholastic achievement between the three SES levels. With the middle intelligence group, higher SES was significantly related to better language achievement and total achievement scores, but the relationship did not hold for reading and arithmetic. Reading, language and total achievement varied to SES in the low ability group.

Summary

1. Low socio-economic status seems to have a bearing on the level of achievement of culturally disadvantaged children.

2. Culturally deprived children seem to be especially deficient in reading as compared to other fundamental skills.

3. Educational retardation is cumulative; the older the child the greater the retardation.

Social and Emotional

Perceived Attitudes of Teachers, Peers and Parents

A careful perusal of the literature on research revealed few studies pertaining to the child's perception of teachers, peers and parents attitudes. No studies were found specifically focused on the culturally disadvantaged with higher potential. The following studies do have some relevance to this study.

Developmental psychology subscribes to the thesis that the early familial environment of the child, particularly the pervading parental attitude and emotional climate of the parent-child relationship is basic in influencing the development of personality and is fundamental in the chiild's adjustment. Ausubel et al (1954), however, suggests that the essential relationship is that which exists between the child's perception of his familial environment and his adjustment. In a study involving the perceptions of fourth and fifth grade children with respect to acceptance, rejection, and intrinsic-extrinsic valuation by parent, Ausubel obtaindd some interesting results. The hypothesis that self-perceptions of rejection and extrinsic valuation by parents (in contrast to those of acceptance and intrinsic valuation) would be related to more omnipotently conceived self-concept, to higher ego aspiration and goal frustration tolerance, to greater ideational independence from parents, and to less advanced levels of personality maturity, was confirmed for those subjects who perceived themselves as extrinsically valued by parents, but not for those who perceived themselves as rejected. The children who perceived themselves as extrinsically valued by parents tended to conceive of their capacities in more omnipotent terms, showed greater evidence of goal tenacity for cumulative, experimentally induced failure in stylus maze performance, tended to disagree more with perceived parent opinions, and were rated as less able to postpone immediate hedonistic gratification.

Ausubel et al (1954) pointed out that ".... although parent behavior is an objective event in the real world, it effects the child's ego development only to the extent and in the form in which he perceives it. Hence, perceived parent behavior is in reality a more direct, relevant and proximate determinant of personality development than the actual stimulus content to which it refers."

Serat and Teevan (1961) using as subjects fourth grade boys and girls from predominantly upper-lower and lower-middle class homes, investigated three hypothesis: (1) child adjustment as related to perception of relationship with family; (2) the child's perception of the relationship is unrelated to parents' perception of the same; and (3) the parents perception of the relationship is unrelated to offspring's adjustment. The results supported the hypothesis. Serat and Teevan conclude that many subtleties are involved in the parent-child relationship of the family which includes parental attitudes toward child rearing which have individual meanings for all concerned. Each individual's perception of the relationship is, in turn, influenced by these meanings. The child's adjustment is directly related to the child's perception of this relationship and only indirectly related to the actual parent-child relationship.

Maas (1951) studied social behavior patterns of pre- and early adolescents in lower class and in core-culture families which consisted of upper-lower and lower-middle class. Parents and peers were interviewed to determine the subjects' relations with parents, siblings, and peers. The results suggest parental relationships with children in the lower class tend to by psychologically closed and quite rigid while the core-culture children were reported as experiencing a more open and more flexible parental relationship. Lower class children expressed fear of parental authority and were characterized as the "bully" or oversubmissive followers. The core-culture children seemed not to fear or to identify with threatening power of adults. While core-culture parents were open to communication, the lower class parents were reportedly closed or inacessible. Maas classified the peer relations of lower class children into two types of security-seeking relationships. In one, the child identified with power and need for peers to establish a high status in relation to his contemporaries. In the other, the child seemed dependent on the physical presence of peers for mutual succorance and direction. A much less dependent relationship among siblings and peers was reported in the core-culture peer groups.

Neugarten (1946) investigated the relationship between the social class position of the family and a child's choice of friends and his reputation among other children. Sociometric questionnaires were administered to fifth and sixth graders and to tenth and eleventh graders from a cross section of social classes. The results showed a relationship between the socio-economic position of the family and the child's sociometric status in school both in regard to friendship and reputation. In choosing friends both age groups made distinction along class lines.

Davidson and Lang (1960) studied the interpersonal perceptions of teachers and children in a New York City School. They found that teachers' ratings of children's achievement and classroom behavior were related to the children's social class. Teachers tended to rate "undesirable" the classroom behavior of lower class children even when their academic achievements

were good. Of more importance is the indicated character of the dynamics involved in this situation. The children themselves seem to realize their teacher's attitude toward them. Children who perceived their teacher's attitude to be negative had lower opinions of themselves, achieved less well, and behaved worse than their more favored classmates.. Thus, perceived teacher attitude seems to play a major role in the child's adjustment as well as his achievement in school.

Summary

1. The child's perception of the teacher's attitude has a bearing on the child's self-perception.

2. Teachers' perception of a child is influenced by the child's social class.

3. Teacher attitude seems to play a major role in the child's adjustment and school achievement.

4. The child's relationship with peers seems to be effected by socio-class status. Child tends to choose other children with their SES group.

5. Parental attitudes as perceived by the child are seemingly more crucial to the personality development of the child than actual parental attitudes.

6. The child's perception of parental attitudes is not necessarily parental perceptions of the same.

7. The parental perceptions of the child-parent relationship do not seem to be as crucial to the child's adjustment as do the child's perceptions of the same.

Parental Attitudes

One of the investigations most closely related to this study was that conducted by Zuckerman and Barrett (1960) in a clinic setting. The Parent Attitude Research Instrument (PARI) was used. One of the purposes of the research was to determine the influence of socio-economic, age, and family constellation factors on attitude of child rearing within a clinic group of parents.

Material PARI factor scores were analyzed relative to two socio-economic factors -- the education of the mother and the occupation of the father. It was found that both of these factors were significantly related to the Authoritarian-Control factor in the attitudes of mothers. It was also discovered that as education of the mother increased, the attitudes of the mothers become less authoritarian and controlling.

Occupations were grouped into three levels: (1) professional, semi-professional, and managerial; (2) trades, clerical, and skilled; and (3) semi-skilled and unskilled. The findings revealed that when clinic mothers were grouped according to the occupational level of their father that the Authoritarian-Control factor was significant. It was likewise found that when the occupational level of the father increases the attitudes of the mother become less authoritarian and controlling. These researchers estimated that 30% of the variance in authoritarian-control was due to variance in the education of the mother and 15% could be accounted for by husband's occupation.

The relationship of education and the authoritarian-control dimension of the attitudes of mothers are found in other studies conducted by Zuckerman et al (1958_a, 1958_b, 1959).

Sears, Macoby, and Levin (1957) by means of a structured interview investigated the relationship between socio-economic status and the authoritarian controlling attitudes reflected in actual child rearing practices. Their findings suggest that middle class mothers are more permissive in four out of five of the major areas of socialization investigated in their study. The findings on mother's education was in agreement with Zuckerman's et al (1958_a, 1958_b, 1959, 1960) findings that the higher the mother's education the more democratic and permissive techniques used.

Miller, and Swanson (1958) also conducted a study on child rearing practices using a structured interview. Their findings contradicted those of Sears et al (1957), and Zuckerman et al (1958_a, 1958_b, 1959, 1960). They found no significant differences in the patterns of child rearing relative to class or mother's education. In fact the trend was toward mothers in the upper educational levels having less permissive attitudes relative to child rearing.

Bayley and Schaefer (1958) completed a study on the relation of socio-economic factors to observe maternal behavior. There was a slight tendency for the mothers of higher socio-economic level to be more warm, understanding, and accepting, and for mothers of lower socio-economic status to be more controlling, irritable, and punitive. It was reported that differences were much greater for boys than for girls. When considering autonomy versus control, there was evidence to suggest that socio-economic level was a determining factor in the treatment of boy and girl infants. Higher status male babies and lower status female babies seemed to have been given more freedom from maternal control. Thus, it would appear that child rearing practices and attitudes are influenced by sex of child and socio-economic variables.

Warner et al (1958) studied patterns of maternal attitudes toward child rearing. His subjects were 50 mothers in upper-lower and 50 mothers in lower-lower socio-economic levels attending public health clinics. Sixteen four item scales of the PARI were administered by reading aloud to the subjects. Findings indicated that the lower-lower group was more strict, more approving of activity, and more accelerating.

Zurich's (1964) study tested the hypothesis that perception of attitudes between parents and their children are significantly related. Forty-two white lower class parents and their adolescent children were given the PARI. The findings indicated (1) members of the same family have different perceptions of attitudes toward family life; (2) greater agreement exists between the perceptions of mothers and daughters than between the perceptions of fathers and their children; (3) parents and their children favor a relationship which is characterized by comradeship, sharing, and permitting or encouraging a child to talk about his anxieties, conflicts, and hostilities.

The finding that there is more agreement between mothers and daughters than [illegible] by the findings of Dentler and [illegible] perspective of socio-

economic class reflect the highest level of relationship while mothers and daughters reflect the lowest. He also found that overall consensus between paired family members decreases as class level decreases.

Zurich (1962) conducted an earlier study to determine the relationship between the attitude of parents as measured by the PARI and a time sampling of child behavior. Since findings were not satisfactorily significant, it appeared to the researcher that behavior of middle class children cannot be predicted from an analysis of parental attitudes toward child rearing. Whether or not these findings would be true of lower socio-economic mothers was not determined in this study.

Dickens (1959), Hart (1957), and Lipset (1959) studied child rearing practices and found that working class mothers dominate their children, make use of harsh and punitive discipline, and maintain social and emotional distance from their children. These child rearing practices according to Ausubel et al (1963) explain, in part, the greater authoritarian syndrome in lower class offspring than seems to be true of middle class children.

Hill (1957) found in his study of Negroes that the parents expect their children to be obedient and submissive. Harsh and even brutal punishment is used for insubordination.

Surveys of the attitudes of white and Negro high school and college students by Greenberg et al (1957) found that Negroes at all grade levels had more authoritarian attitudes than did the white students.

Kohn (1959) conducted a study of social class and the exercise of parental authority with 200 white working class and 200 white middle class families with children in the fifth grade. He found that the conditions under which parents of lower class and upper class children punish their children are quite different. Lower class parents focus on the act itself and the consequences of the child's actions while upper class parents are more concerned about the intent of the child's act. These two approaches reflect radical differences in values. The lower class parent is more concerned with external evaluation; concern for children acquiring qualities that will gain respectability for them. The middle class parent is more concerned with the child's internalizing standards of behavior.

Kohn (1960) also studied social class and the allocation of parental authority of the 200 parents of fifth graders. He was interested in getting information as to how mothers and fathers feel about the division of responsibility for support and constraint of children. The middle class mother felt that the father should be as supportive as she is but that his role in constraining the children is of secondary importance. On the other hand, working class mothers would like their husbands to be more directive and have the major role in imposing restraints. Fathers of middle class children felt that the mother and father should have a shared responsibility, while working class fathers felt that child rearing is the responsibility of the wife.

Summary

1. As socio-economic status decreases the more authoritarian and controlling are the parents in the handling of their children.

2. As socio-economic status decreases so does the role of the father in the rearing of the children.

Frustration

Frustration is defined as taking place ".... whenever the organism meets a more or less insurmountable obstacle or obstruction in its route to the satisfaction of any vital need." (Rosenzweig, 1944) The range of frustration may encompass the following: "(1) those of a passive external sort, such as an inanimate object that stands between the individual and the goal; (2) active external ones, such as a physical threat separating the person from his objectives; (3) passive internal ones, usually the individuals own inadequacies; and (4) active internal ones, in which intrapsychic conflict results from contravalent needs." (Clark, 1951)

According to Rosenzweig, reactions to frustration may be classified as (1) a response to threat against the particular need frustrated which is termed need-persistence and involves some goal-directed activity; (2) a response to threat against the personality itself which is referred to as ego-defense; and (3) a response solely in terms of the problem itself which involves only an expressed awareness by the individual that he is frustrated. With this latter type the individual is unable either to defend his ego or to pursue the original goal. Responses of this type are called obstacle-dominant.

Rosenzweig (1944) holds that most or all frustration is aggressive in character and, thus, categorizes such reactions in terms of how the aggression is handled by the frustrated individual. Aggression may be directed toward the environment (extrapunitive response), aggressive feelings may be turned inward by the frustrated person (intropunitive response), or the person may attempt to gloss over the problem encountered or minimize the importance of the frustration (impunitive response).

The importance of frustration tolerance, defined as "the capacity of the individual to withstand frustration without resorting to inadequate modes of response (Rosenzweig, 1944) is also emphasized. An adequate response is one which is considered to be appropriate to the situation. A reaction would be inadequate if it appeared too consistently in a person's responses to frustration and without sufficient regard for the demands of the environment."

Clarke (1951) points out that frustration tolerance may be thought of as requiring some intellectual capacity for abstract thinking as a basis for delay of gratification.

Several sources consisting of reports of observations and more formal investigation, although not directly related to frustration, provide some clues as to the possible reactions to frustration in the culturally disadvantaged child. The effects of social class on child rearing was investigated by Davis and Havighurst (1948). They concluded from their

findings that child rearing practices of middle class parents actually resulted in more frustration of impulses than do those child rearing practices of lower class parents.

McKee and Leader (1955) conducted an investigation of the relationships of socio-economic status and aggression to the competitive behavior of preschool children. Competitive was defined as "behavior, the intent of which is to excel". Although a low correlation was found between competition and aggression, significantly more competition was found among children from lower socio-economic background and instance of competition increased with age. It was noted that aggression was more common among the lower class children.

Davis (1944) suggests that aggressive behavior observed in the lower class is a characteristic phase of the action-oriented behavior of this group. He observed that "The lower classes commonly teach their children and adolescents to strike out with fist or knife and to be certain to hit first..."

A more recent study by Lesser (1959) suggests that lower class children do not accept violence indiscriminatedly. Boys were likely to accept aggression in response to the physical aggression of another and to accept outbursts or tantrum behavior over verbal aggressions such as tattling, lies, or verbal threats.

Battle and Rotter (1963) studied a personality variable, external versus internal control, in relation to children's social status and race. This variable was related to acceptance of responsibility. Individuals with internal control accept personal responsibility, while people with external control attribute responsibility outside themselves. Negro and white children from grades six and eight were studied by means of a cartoon test and questionnaire. The investigators found that a relationship between control and social class existed with middle-class children more internally controlled than lower-class children. Also, lower-class Negroes were more externally controlled than middle class Negroes and whites. No sex differences in control were found.

Research related to frustration suggests the following:

1. Lower class children are more likely to attribute responsibility for frustration to external events.

2. Lower class children are less internally controlled than middle class children.

3. Both competitive and aggressive behavior seems to be more common among lower class children than middle class children.

Chapter III
THEORETICAL ORIENTATION AND HYPOTHESIS

The younger the child the more undifferentiated his intelligence. Progressive differentiation takes place as the child becomes older. The quality and quantity of the experiences of the child determines the direction of the intellectual development. In a culturally disadvantaged environment some potential abilities may develop while others that receive less stimulation will remain relatively undeveloped. After a time the individual becomes less responsive to stimulation in areas where minimum stimulation has taken place. To compensate for deprivation and to ameliorate learning deficits associated with deprivation, intensive intervention seemingly is essential. Initially successes must be assured to build the individual's self-confidence and feelings of worthiness, to bring about a desire or motivation to learn, and to develop many and varied interests which hopefully will result in elevating his level of cognitive sophistication.

While there is general agreement that the culturally disadvantaged child needs a program designed to help him develop his potentials, new programs have been guided primarily by recommendations of experts based on their experiences and observations. It is the contention of this study that future programs for the culturally disadvantaged can more adequately meet the specific needs of these children when such needs are more precisely determined. In seeking more information about culturally disadvantaged children, the following hypotheses are tested:

I. Intellectual Abilities

Culturally disadvantaged children of higher potential:

A. Are deficient on measures of general intelligence.

B. Will manifest differential development of intellectual abilities.

C. Will manifest a relationship between their socio-economic status and measured intellectual ability.

D. Will obtain lower intelligence quotients as chronological age increases.

E. Of Negro racial origin will attain significantly lower scores on measures of intelligence than will their disadvantaged Caucasian peers.

F. Members of the male sex will attain significantly lower scores on measures of intelligence than members of the female sex.

II. Creativity

Culturally disadvantaged children of higher potential:

A. Will attain higher scores on creativity as socio-economic status increases.

B. Will manifest significantly different scores on measures of creativity as related to racial origin.

C. Will obtain significantly different scores on creativity measures with respect to sex.

D. Will manifest a significant relationship between measures of creativity and intellectual ability.

III. Psycholinguistic Abilities

Culturally disadvantaged children of higher potential:

A. Are markedly deficient in psycholinguistic abilities.

B. Will manifest differential development of psycholinguistic abilities.

C. Will exhibit a significant relationship between their socio-economic status and psycholinguistic abilities.

D. Will attain different scores on tests of psycholinguistic abilities with respect to race.

E. Will obtain significantly different scores on tests of psycholinguistic abilities with respect to sex.

F. Will manifest differential relationships between measured intellectual abilities and psycholinguistic abilities.

IV. Achievement

Culturally disadvantaged children of higher potential:

A. Are not achieving at a level commensurate with their measured intellect.

B. Will manifest higher scores on achievement tests as socio-economic status increases.

C. Will score significantly lower in reading than in arithmetic computation and spelling.

D. Of Negro racial origin will attain significantly lower scores on achievement tests than will their Caucasian peers.

E. Will score significantly higher on achievement tests as scores on intelligence tests increase.

F. Will manifest a relationship between measures of academic achievement and sex.

G. Will attain significantly higher scores on achievement tests as creativity scores increase.

H. Will function significantly lower in work study skills than in other fundamental academic skills.

V. Social and Emotional

Culturally disadvantaged children of higher potential:

A. Will regard themselves as less favorably perceived by their peers, teachers, and parents as socio-economic status decreases.

B. Will manifest a positive relationship between achievement and perceived peer, teacher, and parent attitudes.

C. Will exhibit a positive relationship between creativity and perceived peer, teacher and parent attitudes.

D. Will regard themselves as being perceived more favorably by peers, teachers and parents when Caucasian children are compared with their Negroid counterparts.

E. Will exhibit significant relationship between age and perceived peer, teacher and parent attitudes.

F. Will show a positive relationship between intelligence and perceived peer, teacher and parent attitudes.

G. Whose parents have more positive attitudes with respect to child rearing practices, will achieve at a higher level.

H. Whose parents have more positive attitudes with respect to child rearing practices will be more creative.

I. Whose parents have more positive attitudes with respect to child rearing practices will perceive themselves as better accepted by peers, teachers and parents.

J. Whose parents have more positive attitudes with respect to child rearing practices will be of higher socio-economic status.

K. Whose parents have more positive attitudes with respect to child rearing practices will be of the Caucasian race.

L. Who tend to project blame for frustration to the outside environment will have lower intelligence quotients; achieve less; be less creative; be of lower socio-economic status; perceive themselves as being less well accepted by peers, teachers and parents; be of the Negroid race; and have parents whose attitudes in respect to child rearing are less positive.

M. Who tend to internalize blame for frustrations will have higher intelligence quotients; be better achievers; be more creative; be of higher socio-economic status; perceive themselves as better accepted by peers, teachers, and parents; be of the Caucasian race; and have parents whose attitudes toward child rearing are more positive.

N. Who tend to gloss over or deny frustrations will have lower intelligence quotients; achieve less; be less creative; be of lower socio-economic status; perceive themselves as less well accepted by peers, teachers, and parents; be of the Negroid race; and have parents whose attitudes toward child rearing are less positive.

O. Who react to frustration in a more conventional fashion based on test norms; will have higher intelligence quotients; be better achievers; be more creative; will perceive themselves as being better accepted by peers, teachers, and parents; be of Caucasian race; be of higher socio-economic status, and have parents whose attitudes with respect to child rearing practices are more positive.

P. Who persist toward goals when confronted with frustration; will have higher intelligence quotients; be better achievers; be more creative; will perceive themselves as being better accepted by peers, teachers, and parents; be of Causcian race; be of higher socio-economic status, and have parents whose attitudes with respect to child rearing practices are more positive.

Q. Who are overwhelmed by a frustrating situation will have lower intelligence quotients; be poorer achievers; be less creative, perceive themselves as being less well accepted by peers, teachers, and parents; be of Caucasian race; be of higher socio-economic status; and have parents whose attitudes with respect to child rearing practices are less positive.

R. Who when confronted with frustration employ ego defense mechanisms to attack themselves or others but will not persist in the solution of problems or allow themselves to become overwhelmed by the frustrating situation will have lower intelligence quotients; be poor achievers; be less creative, perceive themselves as being less well accepted by peers, teachers and parents; be of Caucasian race; be of higher socio-economic status; and have parents whose attitudes with respect to child rearing practices are less positive.

Chapter IV

METHOD

Subjects

The subjects for this investigation were drawn from grade kindergarten through 6 of 6 elementary schools that have a high percentage of culturally disadvantaged children. The total population of these schools were 2100. Of these children, 1400 were culturally disadvantaged according to Warner scale rating of father's occupation and condition of housing.

A total of 560 children, or the top 40 per cent of the subjects according to scores on the California Mental Maturity, were referred for final screening. Each of these children were administered the Stanford-Binet, Form L-M Intelligence Scale. Since there was an obvious relationship between the Stanford-Binet IQ, socio-economic status and racial origin of the children, candidates were stratified by socio-economic level, racial origin, sex, and chronological age. The top 20 per cent of the children in each group according to intellectual ability were then selected for placement in the project. Two-hundred and eighty children met all of the criteria.

Since the complete gathering of data for this project was Phase I of a larger study involving a treatment program, parental consent was requested for inclusion in Phase II of the large study. Children were then eliminated from Phase I of the study if parents refused to have them admitted to Phase II of the larger study. In addition some children moved from the community. As a result of the above factors, the number was reduced to 232.

An initial analysis of the characteristics of the subjects indicated that there was a significant positive relationship between grade placement and socio-economic status. Evaluation of the relationship revealed that through some sampling artifact or unidentified trend in the total population, the proportions of upper-lower to lower-lower children in the upper grades was larger than the comparable proportion in the lower grades. A smoothed proportionate random sample of subjects was subsequently selected to control for this factor. Two hundred and three subjects constituted the proportionate sample.

Characteristics of Subjects

The subjects are described in terms of age, grade placement, race, sex, socio-economic status, and intelligence. This information is summarized in Table I.

The chronological ages of the subjects ranged from 5 years, 7 months to 12 years, 11 months. These children were enrolled in kindergarten through grade 6. The proportionate sample consisted of 118 (58.1%) Negro children and 85 (41.9%) white children. One hundred and two females (50.3%) and one hundred and one males (49.7%) comprise the sample. The distribution of males and females was essentially even.

The index of socio-economic status was determined by rating the father's occupation and dwelling type according to the Warner Scales (1949). Weighted scores were obtained by determining the classification of family dwelling and father's occupation and multiplying by 3 and 4 respectively.

TABLE I

CHARACTERISTICS OF SUBJECTS

Age Range	Grade Placement	Race		Sex		Socio-Economic Status		Mean Binet I.Q.	Mean WISC I.Q.		
		White	Negro	F	M	Upper Lower	Lower Lower		V	P	FS
5 yrs., 7 mos. to 12 yrs., 10 mos.	kindergarten thru six, inc.	85	118	102	101	120	83	113	108	107	108

*V = Verbal IQ
P = Performance IQ
FS = Full Scale IQ

Children coming from families that obtained weighted total scores ranging from 35 - 42 were considered for purposes of this study to be of upper-lower socio-economic status, and children from families whose weighted total was 43 - 49 were placed in the lower-lower group with respect to socio-economic status.

According to this method, 120 (59.1%) of the subjects fell in the upper-lower socio-economic status and 83 (40.9%) in the lower-lower.

The mean intelligence quotient of the total sample as measured by the Stanford-Binet was 114. Thus the mean IQ of the group on this instrument falls in the high average range of intellectual ability when compared with norms derived from the general population. The average intelligence quotients of the total sample as measured by the WISC were 108 on the Verbal Scale, 107 on the Performance Scale, with a Full Scale IQ of 108. Thus the mean IQs on the WISC scales fall within the average range of intellectual ability according to norms derived from the general population.

The following characteristics of subjects are based on a random sample of approximately half (N = 98) of the proportionate sample population.

Information relative to the occupation of the father and of the mother in the upper-lower and in the lower-lower socio-economic levels and according to race is presented in Tables II and III. Information on the fathers' occupations is presented in Table II.

Of the 79 fathers included in the sample (see footnote, Table II, regarding fathers not included), 67 per cent (53) had occupations that placed them in the upper-lower socio-economic status; of these, 43 per cent (34) were white and 24 per cent (19) were Negro. The number of white fathers who were in the upper-lower socio-economic classification was almost twice that of the Negro even though the total number of Negroes in the sample was 41 while the number of white fathers was 38, making the distribution according to race essentially the same.

Only 5 per cent (4) white fathers were classified as lower-lower socio-economic status while 28 per cent (22) of the Negro fathers fell in this classification. The one single job classification that had the largest number was that of skilled laborer--25 per cent (20). Seven of these were Negroes and 13 were white.

Data on the mothers' occupations is presented in Table III. Of the 95 mothers included in the sample (see footnote, Table III, regarding mothers not included) 57 per cent (55) had occupations that placed them in the upper-lower socio-economic status; of these, 40 per cent (38) were white and 18 per cent (17) were Negro. As was true of white fathers' occupations, there were approximately two times as many white mothers as Negro mothers in the upper-lower classification.

Forty-four per cent (42) of the entire sample were housewives. It can be noted that 19 per cent (18) of the females were white housewives in the upper-lower classification and only 3 per cent (3) were white females in the lower-lower classification. Eighteen per cent (17) were Negro housewives in the lower-lower socio-economic classification and only 3 per cent (3) of the females were Negro housewives in the upper-lower classification.

TABLE II

FATHERS' OCCUPATIONS[a]

Race and SES	Construction Labor	Gas Station	Janitor	Truck Driver	Cook	School Janitor	Mechanic	Appliance Serviceman	Military	Railroad	Minister	Bus Driver	Skilled Labor	Sheet Metal	TOTAL
Upper White	4(3)[b]	1(1)	1(1)	6(5)		2(2)	5(4)	2(2)		1(1)	1(1)	1(1)	15(12)	1(1)	43(34)
Upper Negro	4(3)		1(1)		9(7)		2(2)				2(2)		5(4)		24(19)
Lower White	4(3)												1(1)		5(4)
Lower Negro	11(9)			4(3)	5(4)	1(1)			1(1)	1(1)			4(3)		28(22)
Total	23(18)	1(1)	2(2)	10(8)	14(11)	4(3)	7(6)	2(2)	1(1)	2(2)	4(3)	1(1)	25(20)	1(1)	100 (79)

a. Of the 98 homes included in the sample, the occupational status of two fathers could not be determined, 11 of the fathers were unemployed, 2 were retired, and 4 were deceased. The mother or mother substitutes occupation was the determinant of socio-economic level in these cases.

b. The first number in each set is a per cent, the number in parenthesis is equal to the number of subjects in that classification.

TABLE III

MOTHERS' OCCUPATIONS [a]

Race and SES	Food Service	Clerk	Domestic	Practical Nurse	Housewife	Lab Technician	Registered Nurse	Factory Assembly	Total
Upper White	11(11)[b]	5(5)			19(18)	1(1)	1(1)	2(2)	40(38)
Upper Negro	5(5)	2(2)	5(5)	1(1)	3(3)			1(1)	18(17)
Lower White		1(1)			3(3)				4(4)
Lower Negro	11(11)	1(1)	6(6)	1(1)	18(17)				38(36)
Total	28(27)	9(9)	11(11)	2(2)	44(42)	1(1)	1(1)	3(3)	100 (95)

a. Three of the mothers were deceased

b. The first number in each set is the per cent, the number in parenthesis is equal to the number of subjects in that classification.

The next highest per cent of occupations among the female sample was food service. Of these, 11 per cent (11) of the total females were white and in the upper-lower socio-economic category. No white females were employed in food service in the lower-lower classification. Five per cent (5) of the total number of females were Negroes of upper-lower socio-economic status and were employed in food service while 11 per cent (11) of the females were Negroes in the lower-lower socio-economic classification and employed in food service. Thus, a total of 28 per cent (28) of both Negro and white females in the upper-lower and lower-lower socio-economic status were in food service occupations.

Table IV presents data on the family income. As shown in the table, the median income of the sample of families is $5465, the mean being $5551. The upper-lower white families have a median income of $6300 with a mean income of $6394, and the Negroes in this same socio-economic classification have a median income of $6080 and a mean income of $5934. (Table IV next page)

It should be noted that the lower-lower white population has a median income of $5500 and a mean income of $5375, while the Negroes in this same classification have a median income of $3855 with a mean income of $4506.

Sixty-three of the 98 families have incomes of $5000 and above. Of these 63 families, information on the source of income indicates that 52 per cent (33) have dual incomes (both parents are working).

Approximately 30 per cent (30) of this random sample of families have incomes below $4000.

In interpreting the incomes of the culturally disadvantaged families in this study, it might be pertinent to state that the average effective buying income, as of 1963, in the City of Champaign was $9651 per household according to figures reported in the June 10, 1964 issue of Sales Management.

Information relative to family structure is given in Table V.

TABLE V

FAMILY STRUCTURE

Race and SES	Foster Parents	Relatives Only	Paternal Extended	Mother Only	Maternal Extended	Mother and Father	Total
Upper White				5(5)	4(4)	30(29)	39(38)
Upper Negro	1(1)		1(1)	2(2)		15(15)	19(19)
Lower White						4(4)	4(4)
Lower Negro	1(1)	1(1)	1(1)	12(12)	3(3)	19(19)	38(37)
Total	2(2)	1(1)	2(2)	19(19)	7(7)	69(67)	100(98)

TABLE IV

FAMILY INCOME

Race and SES	1000-1999	2000-2999	3000-3999	4000-4999	5000-5999	6000-6999	7000-7999	8000-8999	9000-9999	Total	Mean	Median
Upper White		4(4)	1(1)	2(2)	6(6)	13(13)	1(1)	7(7)	4(4)	39(38)	6394	6300
Upper Negro		2(2)	1(1)	1(1)	5(5)	3(3)	7(7)			19(19)	5934	6080
Lower White			2(2)				2(2)			4(4)	5375	5500
Lower Negro	2(2)	2(2)	16(16)	2(2)	9(9)	3(3)		1(1)	2(2)	38(37)	4506	3855
Total	2(2)	8(8)	20(20)	5(5)	20(20)	19(19)	10(10)	8(8)	6(6)	100(98)	5551	5465

Of the 98 random sample of families analyzed in this study, 69 per cent (67) had both mothers and fathers in the home; equal numbers of whites and Negroes were represented. Nineteen per cent (19) had mothers only in the family; only 2 per cent (2) were foster parents; only 1 per cent (1) lived with relatives only; 2 per cent (2) had paternal extended and 7 per cent (7) had maternal extended family situations.

Data on source of income of the families are summarized in Table VI.

TABLE VI

SOURCE OF INCOME

Race and SES	Public Assistance	Retirement	Employment	Total
Upper White			39(38)	39(38)
Upper Negro			19(19)	19(19)
Lower White	2(2)		2(2)	4(4)
Lower Negro	10(10)	2(2)	26(25)	38(37)
Total	12(12)	2(2)	86(84)	100 (98)

Of the sample included in this study, 86 per cent (86) were employed and 14 per cent (14) were unemployed, either drawing public assistance or retired. Of the 14 unemployed or on public assistance, 12 were Negro and 2 were white. Among the unemployed, 2 of the Negroes were retired. There were no unemployed among the upper white or upper Negro.

It should be noted that among the employed, 19 per cent (19) of the total are Negro and of upper-lower socio-economic status, and approximately double that number or 39 per cent (38) are white in this same classification. Only 4 per cent (4) of the total were white and of lower-lower socio-economic classification while 38 per cent (37) of the Negroes fall in this socio-economic classification.

Table VII summarizes data on family workers.

TABLE VII

FAMILY WORKERS

Race and SES	None	Mother	Mother & Father	Father	Total
Upper White		9(9)	10(10)	19(19)	39(38)
Upper Negro		2(2)	12(12)	5(5)	19(19)
Lower White	1(1)		1(1)	2(2)	4(4)
Lower Negro	11(11)	8(8)	10(10)	8(8)	38(37)
Total	12(12)	19(19)	34(33)	35(34)	100 (98)

It should be observed that of the sample of 98 families, 34 per cent (33) have dual incomes. In 35 per cent (34) of the families the father is the sole worker while in 19 per cent (19) of the total families the mother is the only worker. Among those with dual incomes, 65 per cent are from the upper-lower level of socio-economic status and 35 per cent are from the lower-lower socio-economic level. Among the 42 families that are classified as lower-lower socio-economic level, 29 per cent (12) have no member of the family working.

Data on the fathers' and mothers' education are summarized in Tables VIII and IX. Educational data on the fathers are presented in Table VIII.

The mean grade completed by the white fathers of the upper-lower socio-economic classification was 10.6, while the median was 12.1. The Negro fathers in this classification completed a mean number of 9.9 years and a median of 10.4.

In the lower-lower socio-economic classification the white fathers completed a mean number of 9.8 years of school and a median of 10. The Negro fathers in this classification completed a mean number of years of school of 8.6 and a median of 9.0. An inspection of Table VIII reveals that of the total sample, the mean number of years of school is 9.9 and the median is 10.7. If one looks at the range of years of schooling, however, it will be found that there are 10 of the 88 fathers who did not go beyond the sixth grade. There are 29 per cent (6) of the fathers who had an eighth grade education or lower. Of the total sample, 30 per cent (29) graduated from high school and 4 per cent went on to school beyond the high school level.

Data on the educational level of the mothers are summarized in Table IX.

The mean grade completed by the white mothers of the upper-lower socio-economic classification was 11.8 with a median of 12.2. The Negro mothers in this classification completed a mean number of 10.7 years of school with a median of 12.0.

TABLE VIII

FATHERS' EDUCATION (Highest Grade Completed)

Race and SES	2	3	5	6	7	8	9	10	11	12	13	14	15	Total	Mean	Median
Upper White				1(1)	1(1)	7(6)	2(2)	8(7)	1(1)	20(18)	1(1)		1(1)	43(38)	10.6	12.1
Upper Negro					3(3)		2(2)	7(6)	2(2)	2(2)	1(1)			18(16)	9.9	10.4
Lower White					1(1)		1(1)		1(1)	1(1)				5(4)	9.8	10.0
Lower Negro	1(1)	1(1)	1(1)	7(6)	3(3)	2(2)	2(2)	3(3)	7(6)	5(4)		1(1)		34(30)	8.6	9.0
Total	1(1)	1(1)	1(1)	8(7)	9(8)	9(8)	8(7)	18(16)	11(10)	28(25)	2(2)	1(1)	1(1)	100(88)*	9.9	10.7

*The mothers served as informants and were unable to provide information as to the educational level of 10 fathers.

TABLE IX

MOTHERS' EDUCATION (Highest Grade Completed)

Race and SES	4	7	8	9	10	11	12	13	16	Total	Mean	Median
Upper White			5(5)	3(3)	4(4)	3(3)	21(20)	1(1)	2(2)	40(38)	11.8	12.2
Upper Negro		2(2)	1(1)	1(1)	2(2)	3(3)	8(8)	1(1)		19(18)	10.7	12.0
Lower White				1(1)	2(2)	1(1)				4(4)	10.0	10.5
Lower Negro	1(1)	1(1)	8(8)	6(6)	5(5)	7(7)	8(8)			38(36)	9.8	10.4
Total	1(1)	3(3)	15(14)	11(11)	13(13)	15(14)	38(36)	2(2)	2(2)	101(96)	10.5	11.4

In the lower-lower socio-economic classification the white mothers completed a mean number of years of school of 10.0 with a median of 10.5. The Negro mothers in this classification completed a mean number of 9.8 years of school with a median of 10.4.

When the total sample is considered, the mean number of years of schooling is 10.5 and the median is 11.4. When data included in Table VIII and Table IX are compared, it should be noted that mothers completed more years of school than fathers.

Measurement Instruments

The 1960 Stanford-Binet Intelligence Test, Wechsler Intelligence Scale for Children, and Primary Mental Abilities Tests were used to assess the intellectual functioning of the subjects involved in this study. These three measures were administered to assess the subjects' intellectual functioning and to facilitate identification of strengths and weaknesses both with respect to individuals and to the group as a whole.

Psycholinguistic abilities were measured using the experimental addition of the Illinois Test of Psycholinguistic Abilities (McCarthy and Kirk, 1961). Although the probability of a ceiling effect with the older children was recognized, the test was, nevertheless, administered to all subjects to enable the identification of weaknesses that might occur regardless of the age of the subject. This procedure provides the basis of comparison of psycholinguistic attainments of the general population as represented by the test norm group and culturally disadvantaged children of high potential. Interscale comparisons could also be made, if warranted, at all age levels to delineate individual and/or group psycholinguistic assets or deficits. It was, in fact, determined that because of the ceiling effect, a statistical analysis was most feasible only with those scores obtained by first grade subjects.

Appropriate levels of the Stanford Achievement Tests and Iowa Tests of Basic Skills were administered to determine achievement levels of the subjects in the various academic areas. The Stanford Achievement Test battery was administered to all subjects with the exception of the kindergarten pupils, and the Iowa Tests of Basic Skills were given to subjects in grades four, five, and six. Individual subtests were analyzed only for that portion of the total group under study for which they were appropriate on the basis of grade placement. Hence, the number of children included in the statistical treatment of the achievement tests and subtests will vary according to appropriateness as determined by grade placement.

A test of creativity (unpublished) devised by Torrance and adapted for the Demonstration Project for Gifted Youth (Urbana, Illinois, 1963) was used in an attempt to assess the development of those constructs believed important to "creative" thinking. Scores on this instrument provide quantitative measures of Fluency, Elaborateness, Originality, and Flexibility.

To determine the child's perception of his parents' attitudes, a simplified form of the Perceived Parent Attitude Scale (Ausubel, 1954) was administered. A scale to measure the child's perception of teacher attitudes was also given. The Perceived Teacher Attitude Scale was derived from Ausubel's Parent Attitude Scale, with appropriate changes and modifications. To determine the subjects' perceptions regarding peer acceptance-rejection, fifty items sampling this area were selected from the California Test of Personality. After appropriate modifications and changes to guard against response set, these fifty items were arranged serially in a Perceived Peer Relationship Scale.

The Parental Attitudes Research Instrument (PARI) (Schaefer and Bell, 1955) was administered to the mothers and fathers of the children in this study to obtain information on parent attitudes. The 110 items, according to an analysis made by Zuckerman, Barrett, Monashkin, and Norton (1958), measure three vectors of parent attitudes: Authoritarian-Control, Hostile-Rejecting, and Democratic.

As a means of assessing the subjects' reaction to frustration, the Children's Form of the Rosenzweig Picture Frustration Study was utilized. Scores obtained from this test are classified in accordance to direction of aggression (Extra-punitiveness, Intro-punitiveness, and Impunitiveness) and reaction type (Obstacle-Dominance, Ego-Defense, and Need-Persistance).

Qualitative clinical data were obtained from each subject by use of a sentence completion test and structured interview. Other personality instruments were administered as needed at the discretion of the examining psychologist. These data were utilized in the case studies.

All of the above instruments were administered to each subject with the following exceptions: no achievement tests were administered to those children who had just completed kindergarten the previous year and, as noted earlier, certain of the achievement tests and subtests were omitted because, by virtue of test construction, they were inappropriate for certain grade level groups included in the study. With the exception of the Illinois Test of Psycholinguistic Abilities, no ceiling effect was evident on any of the instruments used in this study. All tests were administered by school psychologists except for the Iowa Tests of Basic Skills which were administered by teachers as part of the regular school testing program. Standardized instructions as described in available test manuals were followed to insure uniformity in administering and scoring the instruments. Measuring instruments were read aloud to the subjects and responses recorded by the examiner when necessary to facilitate comprehension by younger subjects.

Since items on the Perceived Parent Attitudes Scale, Perceived Teacher Attitudes Scale, and the Perceived Peer Relationships Scale had been arranged so as to guard against response set errors, the value given to subjects' responses to the negative items was reversed. All responses on these two scales were then weighted so that a high score could be interpreted as indicating greater perceived parental acceptance and intrinsic valuation, high perceived teacher acceptance and intrinsic valuation, or high perceived peer acceptance as appropriate.

Data Analysis

A variety of statistical procedures were used to analyze the data. Basic references for the procedures are Lindquist (1953) and Walker and Lev (1953). When appropriate, the necessary assumptions underlying each statistical treatment were taken into consideration during the analysis. For the purpose of consistency and clarity, the .05 level of significance was adopted and has been reported throughout, even though in many instances differences were significant well beyond the .001 level. According to this procedure, all statements which indicate statistically significant findings should be understood as meaning beyond the .05 level of confidence.

Chapter V

RESULTS

In order to facilitate the comprehensive interpretation of the analysis, the statistical findings are organized into five general areas: Intellectual Abilities, Creativity, Psycholinguistic Abilities, Academic Attainment, and Social and Emotional Factors.

Intellectual Abilities

A comparison of the obtained mean scores on the Stanford-Binet (SB) and on the Wechsler Intelligence Scale for Children (WISC) of the proportionate sample of subjects with the scores expected from individuals in the top 20 per cent of the general population[1], based on the normal curve and the standardization population for each scale, is summarized in Table 10.

As can be seen in Table 10, the obtained mean scores were all significantly below ($p < .05$) the scores expected from the top 20 per cent in the standardization population. Thus, the scores on the Stanford-Binet and WISC obtained by the culturally disadvantaged children in this project differ significantly from the children in the upper 20 per cent of the general population. Although these and similar findings in this study may merely support findings that are generally accepted in the literature, it was deemed important to include the results so that comparisons might be made with other studies and the effects within the top 20 per cent of the population might be better understood.

When the upper-lower (UL) and lower-lower (LL) socio-economic groups are considered as separate sub-groupings, the UL group attained a mean Stanford-Binet IQ of 116.46 and the LL group attained a mean Stanford-Binet IQ score of 108.75.

These obtained scores indicate that the two groups differ significantly ($t = 5.39$) in terms of S-B IQ. From these findings it can also be seen that the lower the socio-economic level, the lower the scores attained on the Stanford-Binet.

A summary of the analysis of variance[2] of the WISC subtest scores for the UL and LL SES groups is reported in Table 11.

As with the Stanford-Binet, the mean WISC subtest scaled scores of the UL group were significantly higher ($F = 18.74$) than those of the LL group. Furthermore, the mean scaled scores of the subtests were

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1. Derivation of expected mean score and standard deviation provided in personal communication with Ledyard Tucker, University of Illinois (See Table X).

2. (Lindquist (1953) Type I design, p 266f.

TABLE X

DIFFERENCES BETWEEN MEAN SCORES OF THE PROPORTIONATE GROUP AND THE EXPECTED MEAN SCORES ON THE UPPER 20% OF THE GENERAL POPULATION

	S-B I.Q.	WISC V-IQ	WISC P-IQ	WISC FS-IQ	WISC SUBTESTS									
					Info.	Comp.	Arith.	Sim.	Voc.	Pic. Comp.	Pic. Arrg.	Bl. Des.	Obj. Assem.	Coding
μ	122.24	120.85	120.85	120.85	14.17	14.17	14.17	14.17	14.17	14.17	14.17	14.17	14.17	14.17
$\bar{X}$	114.03	107.69	106.80	107.91	11.23	10.83	11.44	12.12	10.57	11.34	11.42	10.41	10.41	11.18
N	203	203	203	203	203	203	203	203	203	203	203	203	203	203
$\mu-\bar{X}$	8.21	13.16	14.05	12.94	2.94	3.34	2.73	2.05	3.60	2.83	2.75	3.77	3.76	2.99
B^3	7.31	12.50	13.35	12.29	13.97	15.87	12.92	9.74	17.10	13.44	13.36	17.91	17.86	14.20

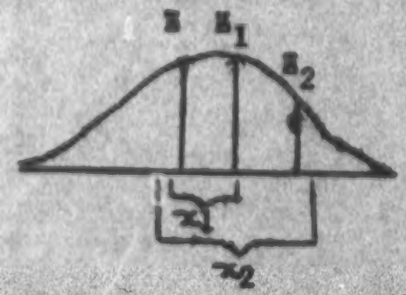
μ = Expected Mean Scores of the upper 20% of the General Population

$\bar{X}$ = Mean Scores of the Proportionate Group

B $.95^3$ = 1.65 (all scores were significant beyond the .05 level)

$$\mu + M - \frac{B}{A}$$

$$\sigma 2 = \frac{C}{A} - M^2$$



A = Area between x_1 and B_2

B = $B_1 - B_2$

C = A - ($x_2 B_2 - x_1 B_1$)

TABLE X

DIFFERENCES BETWEEN MEAN SCORES OF THE PROPORTIONATE GROUP AND THE EXPECTED MEAN SCORES ON THE UPPER 20% OF THE GENERAL POPULATION

	S-B I.Q.	WISC V-IQ	WISC P-IQ	WISC FS-IQ	WISC SUBTESTS									
					Info.	Comp.	Arith.	Sim.	Voc.	Pic. Comp.	Pic. Arrg.	Bl. Des.	Obj. Assem.	Coding
μ	122.24	120.85	120.85	120.85	14.17	14.17	14.17	14.17	14.17	14.17	14.17	14.17	14.17	14.17
$\overline{X}$	114.03	107.69	106.80	107.91	11.23	10.83	11.44	12.12	10.57	11.34	11.42	10.41	10.41	11.18
N	203	203	203	203	203	203	203	203	203	203	203	203	203	203
$\mu-\overline{X}$	8.21	13.16	14.05	12.94	2.94	3.34	2.73	2.05	3.60	2.83	2.75	3.77	3.76	2.99
E^3	7.31	12.50	13.35	12.29	13.97	15.87	12.92	9.74	17.10	13.44	13.36	17.91	17.86	14.20

μ = Expected Mean Scores of the upper 20% of the General Population

$\overline{X}$ = Mean Scores of the Proportionate Group

$E\ .95^3 = 1.65$ (all scores were significant beyond the .05 level)

$$\mu + M - \frac{B}{A}$$

$$\sigma 2 = \frac{C}{A} - M^2$$

A = Area between x_1 and E_2

$B = E_1 - E_2$

$C = A - (x_2 E_2 - x_1 E_1)$

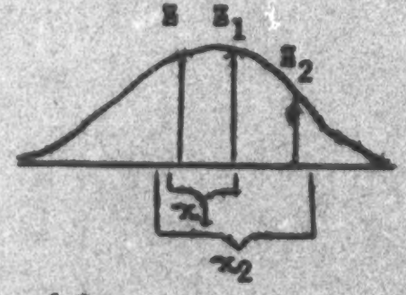


TABLE XI

ANALYSIS OF VARIANCE OF THE WISC SUBTESTS
FOR UPPER-LOWER AND LOWER-LOWER SES GROUPS
(N = 203)

Source	df	ss	ms	F
Between Subjects	202	7568.48		
Between Upper and Lower SES (B)	1	645.42	645.42	18.74*
Error (w)	201	6923.84	34.45	
Within Subjects	1827	10,886.19		
WISC Sub-scales (A)	9	525.97	58.44	10.27*
SES x Sub-scales (AB)	9	69.38	7.71	1.36
Error (w)	1809	10,290.84	5.69	
Total	2029	18,454.67		

*Significant beyond the .05 level.

significantly different from each other. The means and variances for the WISC subtest scaled scores are reported in Table 12. Since there was no interaction, it could be assumed that the differences between the subtests did not vary with socio-economic level. Consequently, the significance of the difference between each of the WISC subtests means for the proportionate group was determined and is reported in Table 12.

From Table 13 it can be seen that the Similarities mean scaled score is significantly larger than all other subtests. Arithmetic and Picture Arrangement are not different from each other but they are significantly larger than Comprehension, Vocabulary, Object Assembly, Block Design, and Picture Completion. On the other hand, the lowest mean scores were in Object Assembly and Block Design which were significantly lower than Coding, Information, Picture Completion, Picture Arrangement, Arithmetic and Similarities. Vocabulary was significantly lower than all the latter scales except Comprehension. In general, then, culturally disadvantaged children of high potential performed highest in the Similarities area and, to a lesser extent, in Arithmetic and Picture Arrangement while their performance was poorest in Block Design and Object Assembly and, to a lesser extent, in Vocabulary.

A statistical summary of the analysis of variance[1] of the Primary Mental Abilities MA scores and the socio-economic status of the subjects is reported in Table 14. Since the PMA tests have different forms for different age levels, only the results for PMA MA scores for children who were 7 to 11 years of age and in grades 3 - 6 are reported in Table 14.

TABLE XIV

ANALYSIS OF THE RELATIONSHIP BETWEEN PRIMARY MENTAL ABILITIES MA SCORES AND SOCIO-ECONOMIC STATUS FOR CHILDREN IN GRADES 3 - 6

Source	df	ss	ms	F
Between Subjects	131	1351.86		
Between SES Groups (B)	1	43.77	43.77	4.35*
Error (b)	130	1308.09	10.06	
Within Subjects	528	1218.90		
PMA Subtests (A)	4	73.08	18.27	8.38*
SESX Subtests (AB)	4	12.95	3.24	1.49
Error (w)	520	1132.87	2.18	
Total	659	2570.76		

*Significant beyond .05 level.

1. Lindquist (1953), Type 1, p 266f.

TABLE XII

MEANS AND VARIANCES FOR WISC SUBTEST SCALED SCORES

		Info.	Comp.	Arith.	Sim.	Voc.	Pict. Comp.	Pict. Arrg.	Block Design	Ob. Assem.	Coding
UL SES (N = 120)	$\bar{X}$	11.67	11.29	11.60	12.39	11.17	11.54	11.85	10.88	10.88	11.16
	s^2	6.71	8.91	5.15	7.42	9.22	10.28	8.04	6.81	8.51	11.39
LL SES (N = 83)	$\bar{X}$	10.32	9.91	10.93	11.44	9.46	10.77	10.52	9.46	9.48	10.66
	s^2	7.22	7.66	9.38	8.59	7.2	9.3	10.11	7.13	10.69	12.98
Totals for Subtests (N = 203)	$\bar{X}$	11.12	10.73	11.33	11.99	10.47	11.23	11.31	10.30	10.31	10.96
	s^2	7.32	8.82	6.95	8.07	9.06	9.98	9.27	7.40	9.83	12.04

TABLE XIII

COMPARISON OF MEAN WISC SUBTEST SCALED SOCRES ON TOTAL GROUP
(N = 203)

	Info.	Comp.	Arith.	Sim.	Voc.	Pict. Comp.	Pict. Arrg.	Block Design	Object Assoc.	Coding
Mean Scores	11.12	10.73	11.33	11.99	10.47	11.23	11.31	10.30	10.31	10.96
Comp.	.39									
Arith.	-.21	-.60*								
Sim.	-.87*	-1.26*	-.66*							
Voc.	.65*	.26	.86*	1.52*						
Pic. Comp.	-.11	-.50*	.10	.76*	-.76*					
Pic. Arrg.	-.19	-.58*	.02	.68*	-.84*	.08				
Bl. Design	.82*	.42	1.03*	1.69*	.17	.93*	1.01*			
Ob. Assem.	.81*	.42	1.02	1.69*	.16	.92*	1.00*	-.01		
Coding	.16	-.23	.37	1.03*	-.49*	.27	.35	-.66*	-.65*	

* Significant beyond .05 level
(Critical d = .47)

From the analysis it is apparent that there is a significant difference (F = 4.35) between the two socio-economic groups with regard to their intellectual functioning as measured by the Primary Abilities Test. Evaluation of the subtest means indicates that the LL group's MA scores are lower than those of the UL group.

Differences between subtests are also significant (F = 8.38). Since there is no significant interaction (F = 1.49) between socio-economic status and PMA subtests, it can be assumed that although the two subgroups differ significantly from each other, the differences are consistent from subtest to subtest and the scores for the subgroups can be grouped for additional evaluation.

The differences between PMA subtest MA scores are summarized in Table 15.

TABLE XV

COMPARISON OF PRIMARY MENTAL ABILITIES SUBTESTS MEANS MA SCORES
(N = 132)

Mean Scores	Verb. Mean 10.94	Space 9.89	Reas. 10.43	Perc.Spd. 10.47	Number 10.44
Space	1.05*				
Reas.	.51*	-.54*			
Perc. Spd.	.47*	-.58*	-.04		
Number	.50*	-.55*	-.01	.03	

*Significant beyond .05 level
(Critical d = .18)

Verbal Meaning is the one area where the subjects clearly function best on the PMA test. Space is just as clearly the weakest area of functioning on the PMA. Since there are no significant differences between reasoning, perceptual speed, or numbers, these apparently develop at a similar rate. In summary, culturally disadvantaged children of high potential function best in the areas of Verbal Meaning and next best in the areas of Reasoning, Perceptual Speed and Numbers. They do less well in the Spatial area.

If mental age on the Stanford-Binet is considered to represent "general" intellectual development, then discrepancies between the Stanford-Binet mental age and other aspects of intellectual functioning should provide information that will lead to a greater understanding of the intellectual functioning of culturally disadvantaged children of high potential.

A comparison of the relationships between PMA mental age scores and the Stanford-Binet mental age scores are presented in Table 16 and Graph 1.

TABLE XVI

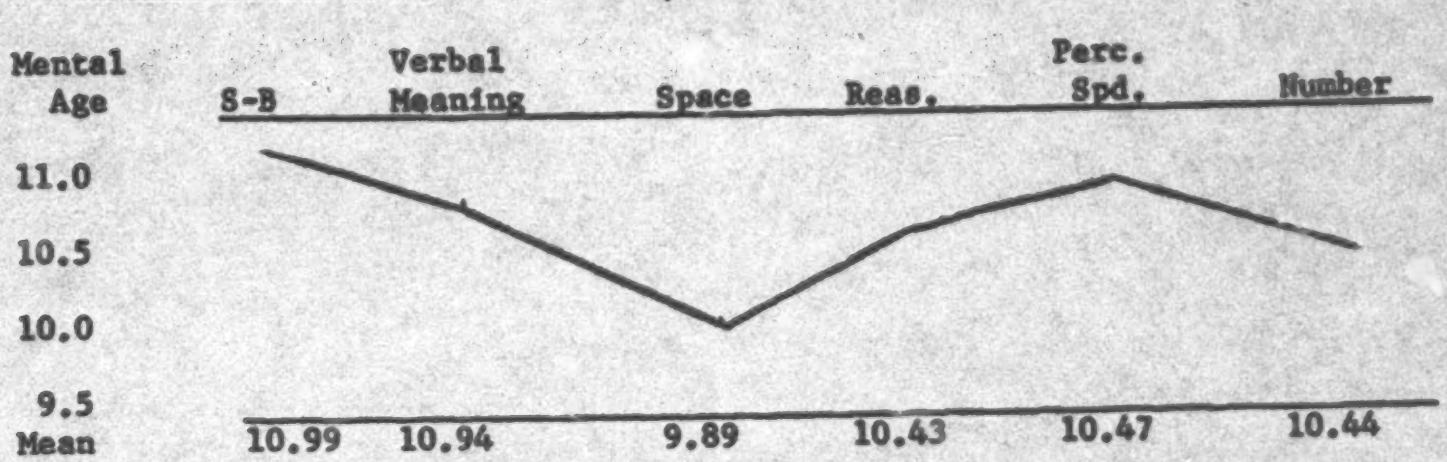
COMPARISON OF BINET MA WITH PMA SUBTESTS MA
(N = 132)

	Verbal	Space	Reas.	Perc.Spd.	Number
Binet Mean MA	10.99	10.99	10.99	10.99	10.99
PMA Mean Age Score	10.94	9.89	10.43	10.47	10.44
Diff.	-.05	-1.10	-.56	-.52	-.55
s^2 Binet	4.37	4.37	4.37	4.37	4.37
s^2 PMA	3.31	3.12	3.29	5.69	4.47
t	-.21	4.62*	2.33*	1.90	2.13*

*Significant beyond .05 level
(t = 1.98 - two tailed)

Graph 1

GRAPHIC COMPARISON OF MEAN STANFORD BINET MENTAL AGE AND PMA SUBTESTS MA SCORES
(N = 132)



It can be observed in Table 16 that the mean PMA Verbal and Stanford-Binet MA scores do not differ significantly. The mental age growth of these children as measured by the Stanford-Binet is significantly greater than their growth in the areas of Space, Reasoning and Number as measured by the Subtests of the PMA. Although some of these differences may be attributed to possible differences between norm population, regression in effect, and similar biasing factors, the findings may be significant enough to consider when planning new programs. Furthermore, future investigations may indicate that there is a significant difference between perceptual speed and Binet MA, a finding which may be masked in the present study by the large variance associated with perceptual speed.

Creativity

A summary of the analysis of variance of differences between creativity subtests and socio-economic levels is reported in Table XVII. Since the raw scores on the creativity tests are not directly comparable, the raw scores were changed to standard scores with a unit normal distribution.

TABLE XVII

ANALYSIS OF VARIANCE OF CREATIVITY SUBTEST STANDARD SCORES AND SOCIO-ECONOMIC LEVEL OF TOTAL GROUP

Source	df	ss	ms	F
Between Subjects	195	656.99	3.37	
Between SES Groups (B)	1	6.53	6.53	1.95
Error (b)	194	650.46	3.35	
Within Subjects	588	216.16		
Subscales (A)	3	.57	.19	.05
Subscales X Gps (AB)	3	.09	.03	.08
Error (w)	582	215.50	.37	
Total	783	873.15		

As can be seen from the results in Table XVII, the scores attained by the UL socio-economic group were not significantly different (F = 1.95) from the scores attained by the LL socio-economic group on any of the creativity tests. Also, there was no significant interaction (F = .08). Thus it appears that the two groupsdid not differ qualitatively. Since the scores had to be normalized and since there are no national norms, no statements can be made as to whether or not the group as a whole was below national norms on one, some, or all of the subtests.

An analysis of each of the subscales is presented in Tables XVIII through XXI (2). Since most previous studies with this creativity test have been conducted using raw scores, this analysis is provided for comparative purposes.

The results of an analysis of possible difference in the fluency of thought of the UL and LL socioeconomic groups is reported in Table XVIII.

TABLE XVIII

ANALYSIS OF VARIANCE OF FLUENCY RAW SCORES
OF THE UPPER LOWER AND LOWER-LOWER SOCIO ECONOMIC GROUPS

Source	df	ss	ms	F
SES	1	1,076.84	1,076.84	1.81
Error (w)	233	138,597.35	594.84	(p $>$ .20)
Total	234	139,674.20		

As can be seen from the results of the analysis of variance, there is no significant difference between the two groups in fluency.

An additional analysis, however, indicates that there is a significant difference by grade level in fluency of thought. The results of this analysis are reported in tables XVIII (a) and XVIII (b).

TABLE XVIII (a)

ANALYSIS OF VARIANCE OF FLUENCY RAW SCORES
BY
GRADE LEVEL

Source	df	ss	ms	F
Grade	6	41,212.79	6878.80	16.11*
Error (w)	228	97,374.40	427.08	
Total	234	139,674.20		

*Sign, beyond the .05 level.

TABLE XVIII (b)

DIFFERENCES BETWEEN MEAN FLUENCY RAW SCORES
BY
GRADE LEVEL

Grades	$\bar{X}$	N	s^2	t^1
K	32.20	35	297.52	
				2.45*
1	43.88	41	437.86	
				.92
2	48.13	39	506.90	
				.21
3	47.92	25	436.99	
				1.63
4	56.88	33	274.55	
				1.84*
5	66.91	34	441.36	
				1.59
6	75.54	28	654.55	

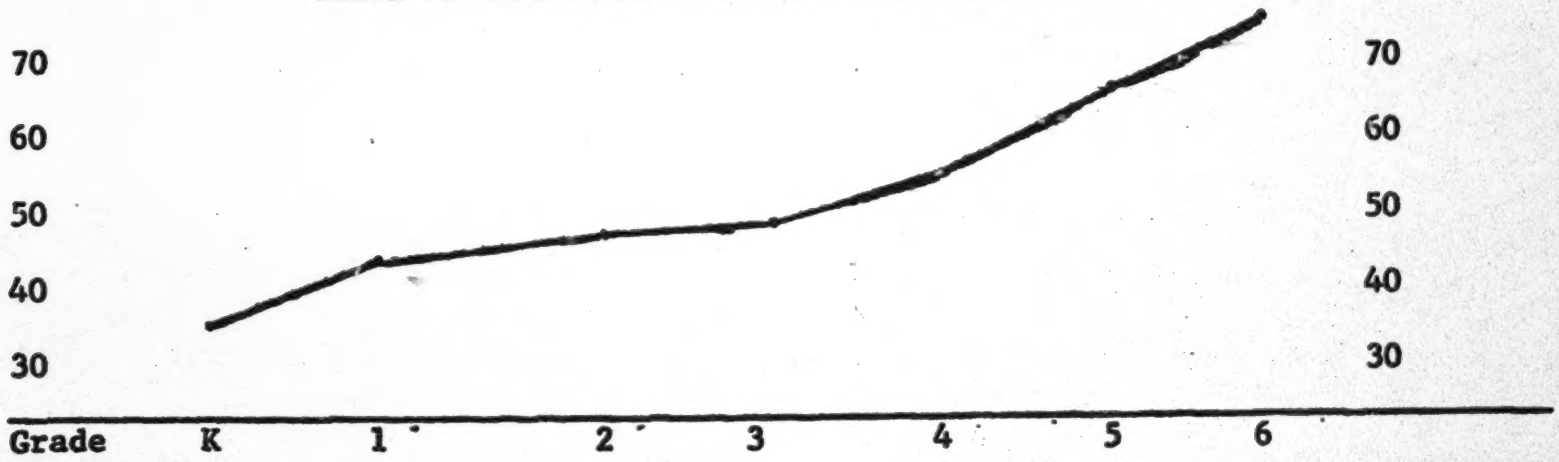
1. Additional tests yield the following pattern of significant difference between mean scores by grade levels. Grade K < (Grade 1 = Grade 2 = Grade 3) < (Grade 5 = Grade 6) Grade K < (Grade 2 = Grade 3 = Grade 4) < (Grade 5 = Grade 6) Grade 1 < Grade 4

*Beyond .05 level

As can be seen from Table XVIII (b) the greatest difference occurred between kindergarten and grade one and between grades four and five. A graphic portrayal of these findings is presented in Graph 2.

Graph 2

GRAPH OF MEAN FLUENCY SCORES ACCORDING TO GRADE LEVEL



Interpretation of Graph 2 suggests that there is a general increase in fluency of thought with grade placement, although a plateau is noted at grades 2 and 3.

The results of an analysis of possible difference in the elaborateness of thought of the UL and LL socioeconomic groups is reported in Table XIX.

TABLE XIX

ANALYSIS OF VARIANCE OF ELABORATENESS RAW SCORES
OF THE
UPPER-LOWER AND LOWER-LOWER SOCIOECONOMIC GROUPS

Source	df	SS	MS	F
SES	1	4,530.08	4,530.08	6.172*
Error (w)	233	171,009.09	733.94	
Total	234	175,539.18		

*Significant beyond .05 level.

As can be seen from Table XIX their was a significant difference between the elaborateness of thought when the scores for the UL group were compared with the scores for the LL group.

An additional analysis of the elaborateness scores by grade level was made and the results are reported in Table XIX (a).

TABLE XIX (a)

ANALYSIS OF VARIANCE OF ELABORATENESS RAW SCORES
BY
GRADE LEVEL

Source	df	SS	MS	F
*Significant beyond the .05 level.				
Grades	6	14,391.45	2398.57	3.41*
Error	228	160,147.73	702.40	
Total	234	174,539.17		

As can be seen from Table XIX (a) there are significant differences in elaborateness scores between grade levels.

An additional analysis of difference between elaborateness scores is presented in Table XIX (b).

TABLE XIX (b)

DIFFERENCES BETWEEN MEAN ELABORATENESS RAW SCORES
BY
GRADE LEVEL

Grades	$\bar{X}$	N	s^2	t^1
K	42.829	35	698.79	
				1.45
1	51.68	41	858.07	
				.53
2	54.82	39	718.99	
				2.46*
3	71.52	25	649.93	
				1.95*
4	57.65	33	586.70	
				.48
5	60.97	34	907.79	
				.08
6	60.39	28	385.73	

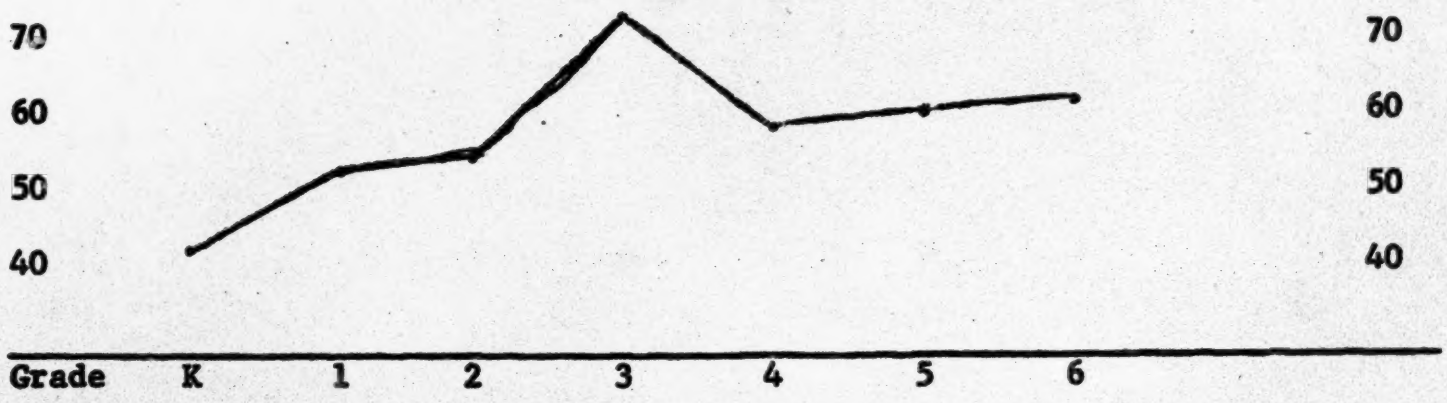
1. Additional t tests yield the following pattern of significant difference between mean scores by grade levels.
Grade K = Grade 1
Grade K = Grade 2
(Grade K, Grade 1, Grade 2) < Grade 3 > (Grade 4 = Grade 5 = Grade 6)

From Table XIX (b) it can be seen that there are significant differences in mean scores between grades 2, 3 and 4.

A graphic portrayal of the curvalinear results are presented in Graph 3.

GRAPH 3

GRAPH OF MEAN ELABORATENESS SCORES
BY
GRADE LEVEL



From Graph 3 it can be seen that the scores increased from kindergarten through 3, peaked at grade 3, and then fell back to a plateau through grades 4, 5 and 6. Differences between the pattern of scores on the elaborateness scales and the other creativity scales are considered in the discussion section.

The results of the analysis of a possible difference in the originality of thought of the UL and LL subgroups is discussed in Table XX.

TABLE XX

ANALYSIS OF VARIANCE OF ORIGINALITY RAW SCORES
OF THE UPPER-LOWER AND LOWER-LOWER
SOCIO-ECONOMIC GROUPS

Source	df	SS	MS	F
SES	1	272.84	272.84	1.01
Error (w)	233	62,754.88	269.33	$p < .20$
Total	234	63,027.73		

As can be seen from the results of the analysis of variance there is no difference between the two groups in originality.

The results of an analysis of originality raw scores by grade level is reported in Table XX (a).

As can be seen from the analysis of variance there is a significant difference in the originality scores by grade level.

Further analysis of the originality score by grade level is reported in Table XX (b)

TABLE XX (a)

ANALYSIS OF VARIANCE OF ORIGINALITY RAW SCORES
BY
GRADE LEVEL

Source	df	SS	MS	F
Grades	6	17,677.35	2,946.22	14.81*
Error	228	45,350.38	198.91	(p<.001)
Total	234	63,027.73		

*Beyond the .05 level.

TABLE XX (b)

DIFFERENCES BETWEEN MEAN ORIGINALITY RAW SCORES
BY
GRADE LEVEL

Grades	$\bar{X}$	N	s^2	t^1
K	17.49	35	205.96	1.61
1	22.71	41	150.61	1.91*
2	28.72	39	247.42	.31
3	29.24	25	148.11	.47
4	31.00	33	143.94	2.57*
5	39.85	34	209.89	1.53*
6	45.36	28	290.16	

1. Additional t tests yield the following pattern of significant differences between mean scores by grade levels. (Grade K = Grade 1) (Grade 2 = Grade 3 = Grade 4) (Grade 6 = Grade 7)

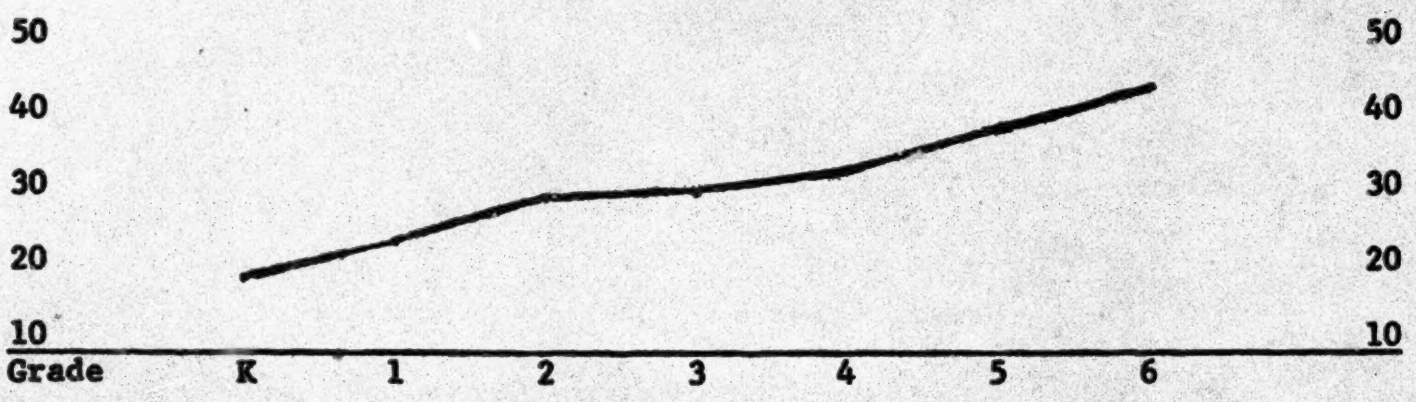
*Beyond .05 level.

From Table XX (b) it can be seen that there is a significant difference in originality scores between grades 1 and 2, 4 and 5, and 5 and 6.

A graphic portrayal of the change in originality scores by grade level is presented in Graph 4.

GRAPH 4

GRAPH OF MEAN ORIGINALITY SCORES ACCORDING TO GRADE LEVEL



From Graph 4 it can be seen that there is growth in originality in grades K through 2 and 4, through 6 with a plateau occurring in grades 2 through 4.

Possible differences in the flexibility of thought of the UL and LL, SES groups were evaluated and the findings reported in Table XXI.

TABLE XXI

ANALYSIS OF VARIANCE OF FLEXIBILITY RAW SCORES OF THE UPPER-LOWER AND LOWER-LOWER SOCIO-ECONOMIC GROUPS

Scource	df	SS	MS	F
SES	1	96.77	96.77	1.15
Error (w)	233	19,677.91	84.45	
Total	234	19,774.68		(p> .20)

The findings indicate that there were no significant differences between the UL and LL groups in originality.

An analysis of the flexibility score by grade level is reported in Table XXI (a).

TABLE XXI (a)

ANALYSIS OF VARIANCE OF FLEXIBILITY RAW SCORES
BY
GRADE LEVEL

Scource	df	SS	MS	F
Grades	6	8,192.78	1365.46	26.85* (P > .001)
Error (w)	228	11,585.90	50.82	
Total	234	19,778.68		

*Beyond the .05 level.

This analysis indicates that there is a significant difference in the flexibility scores by grade level.

Difference between mean flexibility scores by grade level are reported in Table XXI (b).

TABLE XXI (b)

DIFFERENCES BETWEEN MEAN FLEXIBILITY RAW SCORES
BY GRADE LEVEL

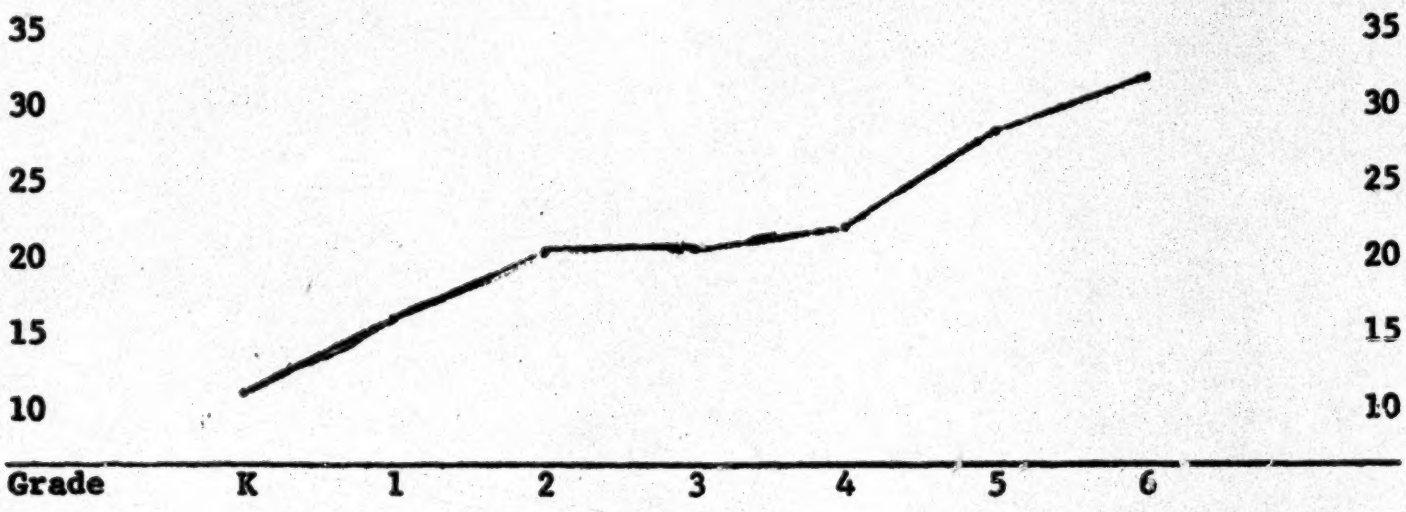
Grade	$\bar{X}$	N	s^2	t^1
K	12.23	35	34.77	
				2.65
1	16.56	41	46.55	
				2.20*
2	20.08	39	65.92	
				.99
3	21.89	25	53.94	
				.42
4	22.40	33	43.37	
				2.89*
5	27.41	34	46.92	
				2.34*
6	31.67	28	66.89	

1. Additional t test yield the following pattern of significant differences between mean scores by grade level.
Grade 2 < Grade 4: Grade 3 = Grade 4: Grade 4 < Grade 5:
Grade K < Grade 1 < (Grade2=Grade 3) < Grade 5 < Grade 6.

A graphic portrayal of flexibility scores is presented in Graph 5.

GRAPH 5

GRAPH OF MEAN FLEXIBILITY SCORES
BY
GRADE LEVEL



From the Table it can be seen that there are significant differences between grades K and 1, 1 and 2, 4 and 5 and 5 and 6. The familiar pattern of a plateau in grades 2, 3 and 4 with growths in K through 2 and 4 through 6 can be seen in Graph 5.

Although no differences were found between SES groups on the creativity measures, the relationships between creativity and other variables provide some information about the functioning of culturally disadvantaged children of higher potential.

A correlation matrix which describes the relationship between creativity and other variances is contained in Table XXII through XXII (f).

From the Table it can be seen that there is no significant relationship between creativity and sex, Race, or Binet IQ. On the other hand significant relationships between creativity scores and such variables as grade, CA, WISC Verbal IQ, WISC Performance IQ, WISC Total IQ, various WISC subtests, and various achievement subtests. Persual of the matrix suggests that the relationships between the creativity subtests and the other variables are differential in nature. A detailed exposition of these relationships will be presented in the Discussion section. Care should be utilized in reading the table because the correlations are not always based on the same population. For example, the relationships between creativity and achievement will vary with the achievement subtest because the form and level of the achievement subtests dictated that they be given only to pupils who met specific criteria as to grade placement, etc. For a discussion of the population underlying each subtest see the description of instruments in the Method section. All relationships indicated as significant in the matrix are, of course, determined to be significant according to the size of the underlying subject population.

GENERAL FORMAT OF TABLE XXII

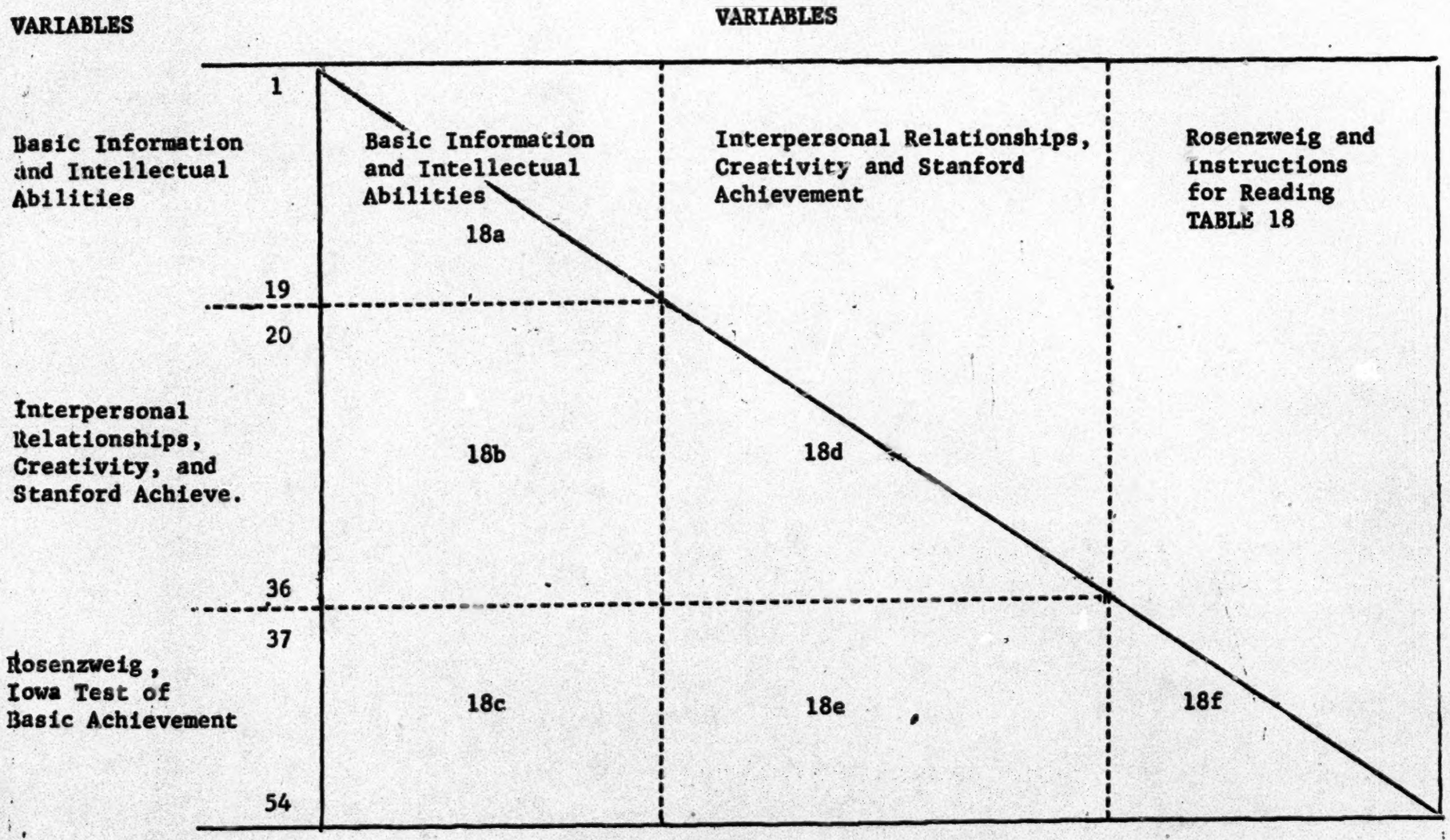


TABLE XXIIa

RELATIONSHIPS AMONG PERTINENT VARIABLES FOR THE PROPORTIONATE GROUP OR SUB-GROUPS AS APPROPRIATE

	Sex	Race	SES	C.A.	M.A.	S-B IQ	Wisc Verb.	Wisc Perf.	Total	Inf.	Comp.	Arith.	Sim.	Voc.	P. C.	P. A.	Bl. D.	Ob. A.	Cod.
Race [1] 2	20																		
SES Wtd.T.[2]3	16	58																	
C. A. 4	-07	00	-07																
M. A. 5	-12	-18	-22	92															
Binet IQ 6	C9	-40	-37	-09	29														
Wisc-Ver. 7	-10	-36	-30	16	41	64													
Perf. 8	-09	-46	-30	3	23	50	55												
Total 9	-11	-46	-34	11	36	65	88	88											
Inf. 10	-03	-32	-26	12	32	51	70	39	62										
Comp. 11	-08	-25	-21	05	20	34	68	31	56	35									
Arith. 12	2	-10	-09	09	22	37	58	41	57	28	21								
Sim. 13	-12	-23	-21	10	30	46	72	34	59	38	39	30							
Voc. 14	-17	-38	-32	21	42	55	75	44	68	47	39	26	45						
P. C. 15	-08	-19	-15	5	17	28	41	62	59	20	30	27	30	32					
P. A. 16	-12	-29	-21	26	37	34	44	64	61	29	22	32	32	38	32				
Bl. D. 17	-23	-45	-27	-09	09	41	39	66	60	28	21	25	23	33	27	28			
Ob. A. 18	-05	-38	-25	-13	3	38	30	68	56	28	13	16	19	25	25	22	51		
Coding 19	18	-12	-7	00	6	17	22	55	44	18	12	32	0	11	15	20	15	20	

		Sex	Race	SES	C. A.	M. A.	S.B. IQ	Wisc Ver.	Wisc Perf.	Total	Inf.	Comp.	Arith.	Sim.	Voc.	P. C.	P. A.	Bl. D.	Obj.A.	Coding
Peer	20	4	-14	-25	-5	3	26	16	15	18	21	3	11	7	13	4	6	19	9	14
Par. A.	21	-01	-28	-18	16	24	25	23	22	25	21	12	14	11	26	3	17	11	17	16
Par. I.	22	4	-12	-11	35	37	13	14	11	13	10	12	2	12	12	4	16	4	3	3
Par. T.	23	2	-23	-17	31	37	22	21	19	22	18	14	9	13	22	4	20	9	11	11
Tch. A.	24	2	5	-13	16	15	5	9	6	9	-01	5	10	11	6	4	8	0	3	32
Tch. I.	25	6	-7	-4	-2	2	13	7	12	11	6	-4	9	7	5	7	4	3	12	14
Tch. T.	26	2	-4	-5	15	17	9	10	11	12	1	0	9	15	9	4	10	4	3	10
Fluency	27	0	-1	-4	45	48	12	22	24	26	9	6	18	16	25	13	28	5	6	21
Elab.	28	8	-6	-18	17	16	0	16	21	21	3	9	11	10	21	17	20	4	13	11
Orig.	29	-2	4	0	48	48	7	18	24	23	4	7	16	13	21	13	26	1	5	23
Flex.	30	0	-6	-10	51	52	10	21	23	25	13	11	12	11	27	12	25	6	7	18
Stan.W.M.[3]	31	-2	-23	-25	58	62	17	34	19	29	32	23	15	24	30	15	23	17	9	-5
Par. M.[3]	32	3	-23	-25	62	70	25	39	25	36	36	24	24	28	31	17	29	17	11	2
Spell.[3]	33	17	0	-5	79	80	18	34	16	28	30	14	32	26	24	11	25	1	5	17
Lang.[4]	34	16	-9	-10	61	74	42	50	29	44	52	27	32	34	38	13	35	23	4	18
Arith.C.[4]	35	19	-2	-6	78	75	21	38	24	36	40	23	34	24	23	15	35	8	4	17
Ari.Con.	36	13	-16	-15	76	83	39	51	34	48	50	30	39	35	33	19	38	19	11	19

TABLE XXIIb

TABLE XXIIc

		Sex	Race	SES	C. A.	M. A.	S.B. IQ	Wisc Ver.	Wisc Perf.	Total	Inf.	Comp.	Arith.	Sim.	Voc.	P. C.	P. A.	Bl. D.	Obj.A.	Cod.
Rosen. E.	37	6	6	-18	-28	-27	2	0	2	1	-8	10	11	-4	-3	5	-5	-1	0	5
Rosen. I.	38	9	1	-11	36	36	4	11	1	7	9	-3	7	14	6	5	11	-7	-1	-4
Rosen. M.	39	-5	-1	-15	-14	12	-5	-5	-5	-6	4	-13	-11	-1	-2	-11	-4	2	2	-2
O-D Total	40	1	2	-13	-4	-5	0	-13	-9	-13	4	-10	-12	-10	-16	-17	-11	-5	-3	6
E-D Total	41	-3	-1	11	-10	-10	-3	7	-4	2	-8	11	11	7	7	4	-1	1	-11	-6
N-P Total	42	7	2	-9	18	21	8	6	14	11	7	0	0	1	7	10	8	2	20	5
GCR	43	1	-8	-6	24	26	10	14	12	15	9	0	3	20	18	16	12	1	7	1
ITBS-Voc[5]	44	9	-20	-24	73	82	43	56	31	49	60	30	32	44	44	22	31	18	7	15
Comp.[5]	45	18	-14	-16	73	80	78	50	22	40	56	29	29	36	35	11	26	12	2	13
Spell.[5]	46	27	5	-6	73	73	26	40	16	31	44	21	32	23	28	15	15	3	-3	19
Cap.[5]	47	23	-4	-10	72	74	28	39	19	32	41	19	29	20	29	16	30	2	-0	13
Punc.[5]	48	20	-5	-9	62	72	39	50	29	45	47	26	39	29	35	20	33	18	8	20
Usage[5]	49	21	-13	-15	62	74	44	53	29	45	50	32	35	41	37	19	29	16	2	17
Maps[5]	50	7	-20	15	64	69	30	38	43	45	41	27	20	29	27	30	23	22	20	45
Graphs[5]	51	23	-8	3	60	63	27	35	27	34	36	23	27	20	23	23	26	10	-5	32
Ref.[5]	52	29	-6	-7	67	63	20	27	27	29	30	16	19	14	24	11	18	12	2	42
Ari.C.[5]	53	13	-8	-9	78	77	27	45	24	38	50	23	34	28	30	14	29	10	5	14
Ari.P.[5]	54	12	-4	-13	79	78	27	43	19	35	45	30	33	15	29	15	27	6	-3	16

TABLE XXIII ...

		Peer	Par.A.	Par.I.	Par.T.	Tch.A.	Tch.I.	Tch.T.	Flu.	Elab.	Orig.	Flex.	St.W.	Par.M.	Spell.	Lang.	Ari.C.	Ari. Con.
Peer	20																	
Par. A.	21	28																
Par. I.	22	29	43															
Par. T.	23	34	81	88														
Tch. A.	24	28	45	44	0													
Tch. I.	25	35	38	18	33	34												
Tch. T.	26	41	38	32	41	68	70											
Fluency	27	1	14	24	23	20	-8	10										
Elab.	28	4	0	12	8	14	-6	0	53									
Orig.	29	0	15	19	20	17	-3	12	88	46								
Flex.	30	3	12	20	19	12	-2	8	73	45	67							
Stan.W.M.[3]	31	11	8	16	14	6	-9	3	25	16	14	64						
Par. M.[3]	32	13	15	23	23	3	-8	3	32	11	24	62	92					
Spell.[3]	33	15	20	26	27	4	-4	8	37	1	37	41	61	69				
Lang.[4]	34	17	26	21	28	6	2	20	27	-2	23	34	81	85	80			
Arith.C.[4]	35	15	29	31	35	4	-1	11	38	-1	32	43	74	80	78	76		
Ari.Con.[4]	36	22	35	31	38	3	-1	12	39	-5	35	44	82	87	82	84	89	

TABLE XXII (c)

		Peer	Par.A.	Par.I.	Par.T.	Tch.A.	Tch.I.	Tch.T.	Flu.	Elab.	Orig.	Flex.	St.W.	Par.M.	Spell.	Lang.	Ari.C.	Ari. Con.
Rosen. E.	37	-20	0	-22	-14	-14	-14	-16	-18	-11	-15	-20	-15	-18	-8	-10	-16	15
Rosen. I.	38	12	10	19	18	21	16	17	16	12	15	22	25	30	33	25	37	33
Rosen. M.	39	11	-1	17	10	7	12	13	6	9	8	14	4	5	-7	1	-7	-5
O-D Total	40	8	7	10	10	2	5	2	-9	-3	-9	-1	-2	-1	1	-2	3	3
E-D Total	41	-15	-12	-12	-14	-14	-22	-20	-2	2	-1	-8	-6	-8	-7	-11	-12	-13
N-P Total	42	13	7	7	8	16	22	21	3	4	8	16	16	16	13	20	13	20
GCR	43	15	15	16	18	25	19	19	9	11	17	18	10	12	11	8	12	6
ITBS-Voc.[5]	44	22	21	25	27	12	2	19	29	3	23	35	91	89	81	81	74	82
Comp.[5]	45	21	23	25	29	11	3	20	35	0	29	41	86	87	82	83	77	85
Spell.[5]	46	19	16	22	22	6	1	14	37	1	30	46	77	79	86	78	80	81
Cap.[5]	47	14	23	24	27	13	9	24	34	6	29	42	73	79	77	79	81	80
Punc.[5]	48	12	28	18	26	7	1	17	31	7	29	34	71	78	75	85	80	82
Usage[5]	49	12	24	22	26	10	1	17	31	3	28	37	80	85	78	81	70	80
Maps[5]	50	16	30	19	28	4	9	20	37	-4	34	31	61	70	62	75	69	75
Graphs[5]	51	19	32	20	29	9	5	19	42	-10	34	39	69	72	70	70	69	73
Ref.[5]	52	29	33	23	32	13	13	27	46	-9	38	47	68	77	76	73	71	76
Ari.C.[5]	53	15	20	22	24	11	6	20	33	11	30	35	75	78	74	76	85	84
Ari.P.[5]	54	16	27	26	31	15	5	23	38	7	33	43	73	76	75	77	84	83

TABLE XXII (E):

— Underlined correlations significant beyond .05 level

1. Race (+ r = Negro higher; -r = white higher)
2. SES Wtd. Total (+ r means Low SES higher;
   - r means High SES higher)
3. These variables are for children in grades 1-6 (only)
4. These variables are for children in grades 2-6 (only)
5. These variables are for children in grades 4-6 (only)

		Ros.E	Ros.I	Ros.M	O-D T	E-D T	N-P T	GCR
Rosen. E.	37							
Rosen. I.	38	-59						
Rosen. M.	39	-78	27					
O-D Total	40	-17	10	24				
E-D Total	41	48	-32	-31	-48			
N-P Total	42	-37	44	30	-5	-71		
GCR	43	-19	29	22	-9	12	13	
ITBS-Voc.[5]	44	-14	29	-2	0	-6	12	16
Comp.[5]	45	-11	27	-3	-1	-5	12	10
Spell.[5]	46	-14	29	-2	-1	-9	14	11
Cap.[5]	47	-17	41	0	-5	-11	20	17
Punc.[5]	48	-14	35	5	-4	-8	18	13
Usage[5]	49	-10	30	3	-6	-11	17	8
Maps[5]	50	-12	21	9	0	-9	17	10
Graphs[5]	51	5	19	-10	1	-2	6	-1
Ref.[5]	52	-6	27	-2	5	-11	13	1
Ari. C.[5]	53	-16	35	2	-5	-5	14	18
Ari. P.[5]	54	-12	29	1	-6	-6	15	14

Psycholinguistic Abilities

The ITPA was administered to all subjects in the study and these results were used in the individual case studies, however, many of the subjects at the upper grade levels scored near or at the ceiling on one or more of the subscales. Consequently, it was decided to use only the kindergarten age group as the subject population in this analysis. The 36 children who formed the subgroup for the analysis were tested during the summer after they completed kindergarten or just after entering school in the fall.

The results of the comparison of the ITPA subscale Language Age (LA) scores with those of the children in the upper 20 per cent of the normative population are contained in Table 23.

TABLE XXIII

COMPARISON OF ITPA SUBSCALE MEAN SCORES WITH THE MEAN SCORES OF CHILDREN IN THE UPPER 20 PER CENT OF THE NORMATIVE POPULATION (N = 36)

	A v Auto	Vis Dec	Motor Enc	AudVoc Assoc	V M Seq	Voc Enc	A V Seq	V M Assoc	Aud Dec
Expected Lang. Age [1]	7.6	8.3	8.6	7.3	7.8	7.8	8.5	7.1	8.8
Mean Score of Kdg. Level Subjects	6.33	6.91	6.24	6.76	6.42	6.99	7.02	6.27	6.83
Diff ($u - \bar{X}$)	1.3	1.4	2.3	0.5	1.4	.8	1.5	.8	2.0
S.D.	1.32	1.36	1.73	1.04	1.44	1.77	1.71	1.08	1.59
t	5.91*	6.62*	8.32*	2.88*	5.83*	2.71*	5.26*	4.44*	7.55*

*Sign. beyond .05 level

[1] Expected language age was found by determining the expected mean language age score for those children in the top 20 per cent of the population in the normative sample of the ITPA.

As expected, these culturally disadvantaged children with higher potential are significantly below expectancy in all areas.

Establishment of the fact that these children do less well than children in the upper 20 per cent of the normative population does not provide sufficient knowledge to help teachers and others develop differentially useful methods of coping with their problems. Consequently, it is necessary to consider within group differences to help determine their strengths and weaknesses.

A summary of the analysis of the ITPA and socio-economic scales for these children is contained in Table 24.

TABLE XXIV

ANALYSIS OF VARIANCE OF THE ITPA LANGUAGE AGE SCORES AND SOCIO-ECONOMIC STATUS OF FIRST GRADE CHILDREN (N = 36)

Source	df	SS	MS	F
Between Subjects	35	194.30		
Between Upper-Lower and Lower-Lower SES	1	16.05	16.05	3.06 $p < .07$
Error	34	78.25	5.24	
Within Subjects	288	22.27		
ITPA Subtests (A)	8	29.60	3.70	2.06* $p < .05$
SES x Subtests (AB)	8	3.93	.491	.27
Error (w)	272	488.74	1.797	
Total	323	716.57		

*Sign. beyond .05 level.

The results indicated that the mean subtest language age scores for these children differ significantly from subtest to subtest (F = 2.06). Although there may be a real difference between the UL and LL socio-economic groups in the area of psycholinguistics, this experimental hypothesis could not be accepted since the obtained F of 3.06 has a probability of only about .07 which does not meet the level of significance adopted for this study.

Since there was no significant interaction between the ITPA subtests and socio-economic status, an evaluation of the differences between subtest means for the total group was made. The significance of the differences between subtests is reported in Table 25.

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From Table 25 (b) it can be seen that the kindergarten subgroup attained language age scores on the Auditory Vocal Sequential, Vocal Encoding, and Visual Decoding subtests that are significantly greater than their scores on the Motor Encoding and Visual Motor Association subtests. In addition, the Auditory Vocal Automatic LA scores are also significantly lower than the Vocal Encoding and Auditory Vocal Sequential scores but not the Visual Decoding scores. A graphic portrayal of these findings is contained in Graph 6.

In general the strengths, according to language age scores, tend to be in Auditory Vocal Sequencing, Vocal Encoding and possibly Visual Decoding, while the weaknesses are in the areas of Motor Encoding and Visual Motor Association and possibly Auditory Vocal Automatic functioning. It should be remembered, however, that these children are markedly educationally retarded in all psycholinguistic abilities when compared with expected attainments of the top 20 per cent of the general school population.

When standard scores are used as a basis for evaluating strengths and weaknesses, there were no statistically significant differences between the UL and LL socio-economic groups on the ITPA subtests, Table XXV (a). In addition, possible differences between the ITPA subtests did not reach statistical significance at the .05 level.

TABLE XXV(a)

ANALYSIS OF VARIANCE OF ITPA STANDARD SCORES
AND
SOCIO-ECONOMIC STATUS

Source	df	Sum of Squares	Mean Squares	F
Between Subjects	34	79.8514		
Upper-Lower vs Lower-Lower Subjects	1	3.8726	3.8726	1.68
Error (b)	33	75.9788	2.3023	
Within Subjects	280	195.1444		
Between Subtests	8	9.7670	1.2208	1.82
SES vs Subtests	8	8.6187	1.0773	1.61
Error (w)	264	176.7587	.6695	
TOTAL	314	274.9958		

Nevertheless, possible differences between the ITPA subtests would be statistically significant if the confidence level were set at the .075 level. Further, if the .05 level were then utilized to determine between test differences the subjects score significantly higher on the Visual Decoding and Vocal Encoding areas and significantly lower on the Motor Encoding, Visual Motor

TABLE XXV (b)
SIGNIFICANCE OF DIFFERENCES BETWEEN ITPA SUBTEST LANGUAGE AGE SCORES

	AV Auto	Visual Decod.	Motor Encod.	AV Assoc.	VM Seq.	Voc. Encod.	AV Seq.	VM Assoc.	Aud. Decod.
Mean	6.33	6.91	6.25	6.76	6.45	6.97	7.02	6.27	6.83
Visual Decod.	-.58								
Motor Encod.	.08	.66*							
AV Assoc.	-.43	.15	-.51						
VM Seq.	-.12	.46	-.20	.31					
Voc. Encod.	-.64*	-.06	-.72*	-.21	-.52				
AV Seq.	-.69*	-.11	-.77*	-.26	-.57	-.05			
VM Assoc.	.06	.64*	-.02	.49	.18	.70*	.75*		
Auditory Decod.	-.50	.08	-.58	-.07	-.38	.14	.19	-.56	

* Significant beyond .05 level
(Critical d = .62)

TABLE XXVII

SIGNIFICANCE OF DIFFERENCES BETWEEN ITPA SUBTEST STANDARD SCORES

	AV Auto	Visual Decod.	Motor Encod.	AV Assoc.	VM Seq.	Voc. Encod.	AV Seq.	VM Assoc.	Aud. Decod.
Mean	-.055	.398	-.114	.252	-.094	.256	.133	-.063	.007
Visual Decod.	-.453*								
Motor Encod.	.059	-.512*							
AV Assoc.	-.307	-.146	-.366						
VM Seq.	-.039	-.492*	.020	-.346					
Voc. Encod.	-.311	-.142	-.370	.004	-.350				
AV Seq.	.188	-.265	.247	-.119	-.327	-.123			
VM Assoc.	.008	-.461*	-.051	-.315	-.031	.319	.196		
Auditory Decod.	-.062	.391	-.121	.245	-.101	.249	.126	-.070	

* Significant beyond .05 level (Critical d = .387)

Sequential, Visual Motor Association, and Auditory Vocal Automatic areas. See Table 25 (c). These findings contrast with the findings obtained when the language age scores are used as a basis for analysis.

It follows then that according to language age scores, the subjects have assets in the Auditory Vocal Sequential and Vocal Encoding areas with a possible borderline asset of Visual Decoding while according to standard scores, they have an asset of Visual Decoding and a borderline asset of Vocal Encoding. Weaknesses according to language age scores are in the Motor Encoding, Visual Motor Association, and possibly in the Auditory Vocal Automatic areas, whereas when standard scores are used, weaknesses are in the Motor Encoding, Visual Motor Sequential, Visual Motor Association, and Auditory Vocal Automatic areas.

Factors other than socio-economic status may affect performance on the ITPA. The relationship between ITPA, LA scores and other factors are reported in Table 26. It should be noted that their relationships are based only on the kindergarten level subjects in the subject population.

From the table it can be seen that there are no significant relationships, with a few exceptions, between ITPA, LA scores and sex, race, Binet MA and IQ, WISC Total, Performance, and Verbal IQ scores, WISC subtest scaled scores, PMA MA scores, and creativity raw scores. Of the exceptions it should be noted that Auditory Vocal Automatic, Auditory Vocal Association, and Auditory Decoding have significant positive relationships with several of the major measures of intellectual ability which suggest that functioning on these ITPA scales varies significantly with the level of intellectual development in children, even within such a homogeneous population.

Of special interest are the apparent relationships between ITPA scores and race. Evaluation of these relationships is difficult because for some unknown reason there is a significant relationship between CA and race (.48) in the subject population such that the negro pupils tended to be somewhat older even though they were still of first grade age. Since chronological age is related to ITPA subtest scores in the general population, although not significantly so in the subject population, it was decided to hold the effects of CA constant through partial correlation techniques. The results of this analysis are contained in Table 23.

When CA is held constant there is a significant relationship between Auditory Vocal Association) -.33), Visual Motor Sequential (-.49), and Visual Motor Association (-.40) such that white pupils function better than negro pupils on these scales.

Since there is a significant relationship between certain of the ITPA variables and certain of the intellectual variables, additional consideration was given to these relationships. Also, since there is a significant relationship between race and WISC performance IQ (-.47) and race and WISC Total IQ (-.35), it was decided to control any effects that might result from racial group membership through the method of partial correlation. The relationships between ITPA subscores and Stanford-Binet IQ are reported in Table 28.

TABLE XXVI

RELATIONSHIPS BETWEEN ITPA SCORES AND OTHER VARIABLES IN 1st GRADE CHILDREN (N = 36)

		Sex	Race	SES	C. A.	M. A.	Binet IQ	Verb. IQ	Perf. IQ	Total Wisc	Inf.	Comp.	Arith	Sim.	Voc.	P.C.	P.A.	B.D.	O.A.	Cod.
A.V.Auto	25	05	-35	-18	-26	19	37	33	40	39	20	22	-04	12	43	24	48	37	21	04
Vis.Dec.	26	-04	06	02	13	-01	-11	-12	02	-03	-04	-08	-17	-11	03	20	-01	-13	00	02
Mot.Enc.	27	-14	04	06	27	29	15	27	21	28	06	14	14	22	22	48	05	04	10	01
A.V.Assoc.	28	17	-33	-35	-08	35	44	36	47	48	36	18	11	07	32	27	42	22	53	09
V.M.Seq.	29	-12	-44	-37	-01	-14	-18	-26	14	-09	-18	-06	-02	-27	-27	08	00	26	23	-09
Voc.Enc.	30	02	-15	-18	18	18	03	17	17	16	08	17	10	-02	14	29	-02	19	02	06
A.V.Seq.	31	14	-09	-10	-16	20	29	28	24	28	09	15	04	30	27	30	01	13	33	01
V.M.Assoc.	32	08	-20	-09	28	22	05	13	10	13	28	-23	13	08	12	30	-03	-12	15	00
Aud.Dec.	33	-04	-16	-13	-23	35	53	43	40	46	12	32	21	28	38	29	30	24	31	18

— The underlined correlations are statisticaly significant beyond the .05 level.

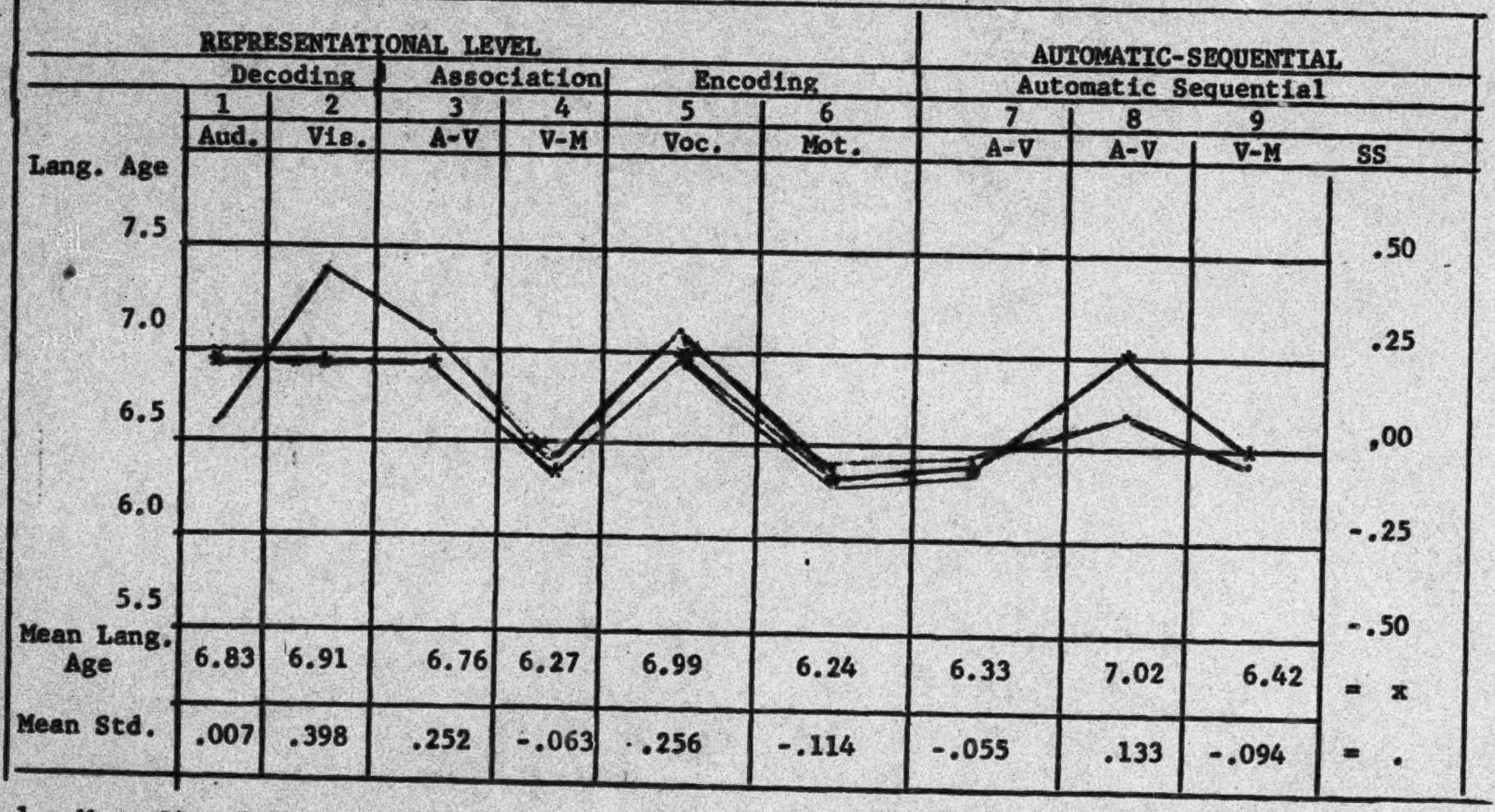
TABLE XXIV(a)

		PMA V.M.	Space	Reas.	Per. Sp.	No.	A.V. Auto	Vis. Dec.	Mot. Enc.	A.V. Assoc.	V.M. Seq.	Voc. Enc.	A.V. Seq.	V.M. Assoc	Aud. Dec.
A.V.Auto	25	34	24	-00	04	19									
Vis.Dec.	26	08	-06	-00	09	-14	09								
Mot.Enc.	27	01	-08	-00	-07	18	10	27							
A.V.Assoc.	28	51	41	-00	50	48	56	24	21						
V.M.Seq.	29	00	21	00	22	20	22	-02	04	30					
Voc.Enc.	30	-07	21	-00	08	19	28	-19	22	03	29				
A.V.Seq.	31	17	23	-00	20	15	29	-22	10	21	-01	49			
V.M.Assoc.	32	11	32	-00	36	35	21	26	37	30	10	37	17		
Aud.Dec.	33	-04	22	-00	28	39	54	01	33	42	16	16	29	25	

— The underlined correlations are statisticaly significant beyond the .05 level.

GRAPH 6

MEAN ITPA SCORES FOR KINDERGARTEN SUB-GROUP (N=36)



	1 Aud.	2 Vis.	3 A-V	4 V-M	5 Voc.	6 Mot.	7 A-V	8 A-V	9 V-M
Mean Lang. Age	6.83	6.91	6.76	6.27	6.99	6.24	6.33	7.02	6.42
Mean Std.	.007	.398	.252	-.063	.256	-.114	-.055	.133	-.094

1. Mean CA = 5-10; Mean MA = 6-8

TABLE XXVII

ANALYSIS OF THE RELATIONSHIPS BETWEEN ITPA SUBTEST SCORES AND RACE WHEN CHRONOLOGICAL AGE IS CONSTANT (N = 36)

ITPA Subtests	r/Race	r/CA	$r_{12.3}$
A.V.Auto.	-.35*	-.26	-.27
Vis.Dec.	.06	.13	.00
Mot. Enc.	.04	.27	-.10
A.V. Assoc.	-.33*	-.08	-.33*
V.M. Seg.	-.44*	-.01	-.49*
Voc. Enc.	-.15	.18	-.27
A.V. Seg.	-.09	-.16	-.01
Vis.Mot.Assoc.	-.20	.28	-.40*
Aud. Dec.	-.16	-.23	-.06

1 - r between CA and race = .48
* Sign. beyond .05 level.

TABLE XXVIII

PARTIAL CORRELATION BETWEEN ITPA SUBTEST SCORES AND BINET WITH RACE[1] HELD CONSTANT (N = 36)

ITPA Subtests	r/Binet	r/Race	$r_{12.3}$
A.V.Auto.	.37*	-.35*	.35*
Vis.Dec.	-.11	.06	-.10
Mot.Enc.	.15	.04	.16
A.V. Assoc.	.44*	-.33	.42*
V.M.Seq.	-.18	-.44*	-.13
Voc. Enc.	.03	-.15	.009
A.V. Seq.	.29	-.09	.28
V.M.Assoc.	.05	-.20	.02
Aud.Dec.	.53*	-.16	.59*

1 - correlation between Binet IQ and Race = -.14
* Sign. beyond .05 level.

When racial group membership is held constant, there is a significant positive relationship between Stanford-Binet IQ and the ITPA subscales of Auditory Vocal Automatic, Auditory Vocal Association, and Auditory Decoding among culturally disadvantaged pupils of higher potential.

The relationships between ITPA subscales and WISC Total IQ, Verbal IQ and Performance IQ are contained in Tables 29, 30, and 31 respectively.

Significant relationships were found between the WISC Total IQ and the ITPA subscales of Auditory Vocal Association (.41) and Auditory Decoding (.44). Similarly, there are significant relationships between the WISC Verbal and Performance IQs and the Auditory Vocal Association and Auditory Decoding.

TABLE XXIX

PARTIAL CORRELATIONS BETWEEN ITPA SUBTEST LANGUAGE AGE SCORES AND WISC TOTAL IQ WITH RACE HELD CONSTANT (N = 36)

ITPA Subtests	r/WISC Total[1]	r/Race	$r_{12.3}$
A.V. Auto.	.40*	-.35*	.32*
Vis. Dec.	-.03	.06	-.01
Mot. Enc.	.28	.04	.31
A.V. Assoc.	.48 *	-.33*	.41*
V.M. Seq.	-.09	-.44*	-.29
Voc. Enc.	.16	-.15	.12
A.V. Seq.	.28	-.09	.27
V.M. Assoc.	.13	-.20	.07
Aud. Dec.	.46 *	-.16	.44*

1 - r between WISC Total and Race = .-.35
* Sign. beyond .05 level.

TABLE XXX

PARTIAL CORRELATIONS BETWEEN ITPA SUBTEST SCORES AND WISC VERBAL IQ WITH RACE[1] HELD CONSTANT (N = 36)

ITPA Subtests	r/WISC Verbal	r/Race	$r_{12.3}$
A.V. Auto.	.33*	-.35*	.31
Vis. Dec.	-.12	.06	.11
Mot. Enc.	.27	.04	.28
A.V. Assoc.	.36*	-.33	.35*
V.M. Seq.	-.26	-.44*	-.24
Voc. Enc.	.17	-.15	.16
A.V. Seq.	.28	-.09	.28
V.M. Assoc.	.13	-.20	.11
Aud. Dec.	.43*	-.16	.42*

1 - r between Race and WISC Verbal IQ = -.25
* Sign. beyond .05 level.

TABLE XXXI

PARTIAL CORRELATIONS BETWEEN ITPA SUBTEST SCORES AND WISC PERFORMANCE IQ WITH RACE[1] HELD CONSTANT (N = 36)

ITPA Subtests	r/WISC Perf.	r/Race	$r_{12.3}$
A.V. Auto.	.40*	-.35*	.28
Vis. Dec.	.02	.06	.01
Mot. Enc.	.21	.04	.26
A.V. Assoc.	.47*	-.33*	.38*
V.M. Seq.	.14	-.44*	.08
Voc. Enc.	.17	-.15	.09
A.V. Seq.	.24	-.09	.22
V.M. Assoc.	.10	-.20	-.01
Aud. Dec.	.40*	-.16	.37*

1 - r between Race and WISC Performance IQ = -.47
* Sign. beyond .05 level.

Academic Attainments

One of the basic concerns of any educational research project is with the academic attainments of the subjects. Two measures of achievement, the Iowa Test of Basic Skills, Form I and II, and the Stanford Achievement Test (Form W, 1964) were used to evaluate level of attainments.

Stanford Achievement Tests

The Stanford Achievement Battery (Form W, 1964) provides a recently rewritten and restandardized series of scales for the evaluation of the educational achievement of children. The Stanford Achievement Test Battery was administered in the late spring.

The areas of knowledge and skills measured by the various subtests of this battery differ according to the maturation of the children based on grade level. Further, they reflect the changes in curriculum content found at the different grade levels. For example, the Primary I battery, which is designed for administration to children in the last half of grade one provides a measure of "Arithmetic" which yields one gross score based on a variety of tasks including measures, simple problem solving, and number concepts. The Advanced battery, in contrast, contains separate subtests for Arithmetic Computation, Arithmetic Concepts, and Arithmetic Applications. Since the subtests differ from grade level to grade level, it was decided to analyze the results for only those achievement subtests which provide some differentiation yet continuity between grade levels. As a result, an analysis was made of the Word Meaning, Paragraph Meaning, Spelling, Language, Arithmetic Computation, and Arithmetic Concepts subtest scores for those children in grades 2 - 6.

A summary table of the analysis of the Stanford Achievement grade placement scores and socio-economic status is presented in Table 32.

TABLE XXXII

ANALYSIS OF STANFORD ACHIEVEMENT SUBTEST GRADE PLACEMENT SCORES AND SOCIO-ECONOMIC STATUS IN GRADES 2 - 6 (N = 106)

Source	df	SS	MS	F
Between Subjects	105	1663.03		
Between High and Low SES Groups (B)	1	18.09	18.09	1.14
Error (6)	104	1644.94	15.81	
Within Subjects	530	353.32		
Achievement Subtests (A)	5	31.65	6.33	10.55
SES Subtest Interaction (AB)	5	7.38	1.48	2.47*
Error (w)	520	314.29	.60	
Total	635	2016.35		

*Sign. beyond .05 level.

The analysis indicates that there was a significant differential effect between socio-economic status and achievement (F = 2.47).

Since there was a significant interaction, it was necessary to evaluate the differences between the cells in the design.

Achievements of Upper-Lower Socio-Economic Status Group

A summary of the differences between subtests on the Stanford Achievement Test for the UL socio-economic group is reported in Table 33.

TABLE XXXIII

DIFFERENCES AMONG STANFORD ACHIEVEMENT SUBTESTS FOR THE UL SES CHILDREN IN GRADES 2 - 6 (N = 63)

Stanford Achievement Subtests	Word Meaning	Para. Meaning	Spell.	Lang.	Arith. Comp.	Arith. Concepts
Para. Meaning	.22					
Spelling	-.02*	-.24*				
Language	.43*	.21	.45*			
Arith. Comp.	.63*	.41*	.65*	.20		
Arith. Concepts	.09	-.13	.11	-.34*	-.54*	

* Significant beyond .05 level.
(Critical d = .28)

Evaluation of the significant differences indicates that the children in the UL socio-economic group achieve at a significantly higher level in the areas of Spelling, Word Meaning, and Arithmetic Concepts when the relationships between all the areas are considered. Also, these children achieve at a significantly lower level in the areas of Arithmetic Computation and Language. Achievement in Paragraph Meaning is significantly higher than Language or Arithmetic Computation but lower than Spelling or Word Meaning.

A comparison of mean achievement grade placement scores with expected achievement derived from application of the Horn Formulas to the mean CA and MA scores for the UL group is contained in Table 34.

TABLE XXXIV

COMPARISON OF STANFORD ACHIEVEMENT RESULTS OF THE UL GROUP WITH EXPECTED ACHIEVEMENT BASED ON STANFORD-BINET MA AND CA
(N = 63)

	Word Mean.	Para. Mean.	Spell.	Lang.	Arith. Comp.	Arith. Concepts
Expected[1] Ach. $\bar{X}$	5.53	5.54	5.26	5.26	5.26	5.26
Weighted[2] s^2 z	2.76	2.76	2.44	2.44	2.44	2.44
Attained Ach. $\bar{X}$	4.74	4.52	4.76	4.31	4.11	4.65
s^2	3.57	4.14	3.77	3.30	2.56	3.82
t	2.47*	3.05*	1.58	3.11*	4.04*	1.78*

*Significant beyond .05 level - 1 tailed test

[1]Expected achievement based on the following Horn Formulas

Expected Reading Grade Placement = $\frac{2MA + CA}{3} - 5$

Expected Arithmetic, Spelling, and Language grade placement = $\frac{MA + CA}{2} - 5$

[2]Weighting for the variances based on the weights for CA and MA in the appropriate Horn Formulas. MA derived from the Stanford-Binet.

From the results, it can be seen that the UL group is achieving significantly below expectancy in all areas except Spelling. These findings are significant from an educational as well as a statistical point of view since the children are achieving from three-fourths to one full year below expectancy. In addition, since the attained IQs are also significantly below expectancy, as indicated earlier, and thus establish lower expectancies for these children, it can be seen that the children are seriously educationally underachieving.

Achievements of Lower-Lower Socio-Economic Group

Differences between Stanford Achievement subtests mean grade placement scores for the LL socio-economic group are contained in Table 35.

TABLE XXXV

DIFFERENCES AMONG STANFORD ACHIEVEMENT SUBTESTS
FOR THE LL SES CHILDREN IN GRADES 2 - 6
(N = 43)

	Word Mean.	Para. Mean.	Spell.	Lang.	Arith. Comp.	Arith. Concepts
Para. Meaning	.20					
Spelling	.08	-.12				
Language	.05	-.15	-.03			
Arith. Comp.	.05	-.15	-.03	.00		
Arith. Concepts	-.14	-.34*	-.22*	-.19	-.19	

*Significant beyond .05 level
(Critical d = .21)

Mean achievement scores for the LL groups were less differentiated than the scores for the UL group. In the LL group only the Arithmetic Concepts scores was significantly higher than two of the other scores. Paragraph Meaning and Spelling were lower than Arithmetic Concepts. Thus, although there were significant differences between subtests, the differences are educationally less significant because the total range of differences for the LL group of .34 of a year is much less than the .65 of a year for the UL group.

Comparison of the Stanford Achievement subtest mean grade placement scores with the expected mean grade placement scores for the LL group is reported in Table 36.

TABLE XXXVI

COMPARISON OF STANFORD ACHIEVEMENT TEST RESULTS WITH EXPECTED ACHIEVEMENT FOR THE LL GROUP (N = 43)

	Word Mean.	Para. Mean.	Spell.	Lang.	Arith. Comp.	Arith. Concepts
Expected[1] Ach. $\bar{X}$	4.94	4.96	4.78	4.78	4.78	4.78
Weighted s^2	2.31	2.31	2.09	2.09	2.09	2.09
Attained Ach. $\bar{X}$	4.09	3.89	4.01	4.04	4.04	4.23
s^2	2.26	2.40	3.09	2.43	2.38	2.84
t	2.61*	3.24*	2.22*	2.25*	2.26*	1.62

*Significant beyond .05 level.

[1]Expected mean achievement score derived from the following Horn Formula.

$$\text{Expected Reading grade placement score} = \frac{2MA + CA}{3} - 5$$

$$\text{Expected Arithmetic, Spelling, and Language grade placement score} = \frac{MA + CA}{2} - 5$$

[2]Weighted s^2 are derived from the s^2 associated with CA and MA and weighted according to the appropriate Horn Formula. MA is derived from the Stanford-Binet.

The results of the analysis indicate that the children in the LL group achieved significantly below expectancy in all areas except Arithmetic Concepts. This underachievement is significant both from an educational and a statistical point of view since the children are underachieving from .74 to 1.07 years. Again, the expectancy scores are derived from the MA and CA scores attained by the children and not from some other source. When it is understood that these children also attain scores on the Stanford-Binet that are considerably below expectancy, then their underachievement becomes even more important.

A comparison of the differences between the UL and LL socio-economic groups on the Stanford Achievement Tests is made in Table 37.

TABLE XXXVII

COMPARISON OF DIFFERENCES BETWEEN UL AND LL SES GROUPS ON THE STANFORD ACHIEVEMENT TEST

		Word Mean.	Para. Mean.	Spell.	Lang.	Arith. Comp.	Arith. Concepts
Upper-Lower	$\bar{X}$	4.74	4.52	4.76	4.31	4.11	4.65
	s^2	3.57	4.14	3.77	3.30	2.54	3.82
	N	63	63	63	63	63	63
Lower-Lower	$\bar{X}$	4.09	3.89	4.01	4.04	4.04	4.23
	s^2	2.26	2.40	3.09	2.43	2.38	2.84
	N	43	43	43	43	43	43
	t	1.89*	1.81*	2.03*	.80	.23	1.15

* Significant beyond .05 level.

According to the results the UL group attained significantly higher grade placement scores than did the LL group on the Word Meaning, Paragraph Meaning, and Spelling subtests but did not perform at a significantly higher rate in the Language, Arithmetic Computation, and Arithmetic Concepts areas.

Iowa Test of Basic Skills

The Iowa Test of Basic Skills (ITBS) is an achievement test battery that is designed to be used with children who are in grades three through eight. Because of its restricted range and other limitations, the full battery was administered to those children who were beginning grades four through six. It is this group that provides the subject population for the analysis of achievement as measured by the Iowa Test of Basic Skills.

The results from the analysis of the subtests grade placement scores on the ITBS and their socio-economic group membership is reported in Table 38.

TABLE XXXVIII

ANALYSIS OF VARIANCE OF IOWA TEST OF BASIC SKILLS AND SOCIO-ECONOMIC STATUS OF FOURTH, FIFTH, AND SIXTH GRADE CHILDREN
(N = 82)

Source	df	SS	MS	F
Between Subjects	81	1851.17		
Between High and Low SES Groups (B)	1	48.29	48.29	2.14
Error (b)	80	1802.88	22.54	
Within Subjects	820	725.00	.906	
Achievement Subtests (A)	10	59.27	5.93	7.28*
SES Subtest Interaction (AB)	10	13.78	1.38	1.69
Error (w)	800	651.95	.815	
Total	901	2576.17		

In contrast to the results obtained on the Stanford Achievement battery, there was no significant difference between the UL and LL SES groups mean grade placement scores on the ITBS (F = 2.14). Further, there was no significant interaction between the ITBS and SES variables.

The results did indicate, however, that there was a significant difference between the mean grade placement scores for the various subtests.

The differences between the subtest mean grade placement scores are reported in Table 39.

TABLE XXXIX

DIFFERENCES BETWEEN ITBS SUBTEST MEAN GRADE PLACEMENT SCORES
(N = 83)

	Reading			Lang. Skills			Wk. Study Skills			Arith.	
	Wd. 1	Comp. 2	Spell. 3	Cap. 4	Punc. 5	Use. 6	Map 7	Graph 8	Ref. 9	Comp. 10	Prob. 11
X	5.69	5.64	5.83	6.03	5.30	5.47	5.24	5.34	5.52	5.39	5.14
2	.05										
3	-.14	-.19									
4	-.34*	-.39*	-.20								
5	.66*	.61*	.80*	1.00*							
6	.22	.20	.36*	.56*	-.44*						
7	.45*	.40*	.59*	.79*	-.21	.23					
8	.35*	.30*	.49*	.69*	-.31*	-.13	-.10				
9	.17	.12	.31*	.51*	-.49*	-.05	-.28*	-.18			
10	.30*	.25	.44*	.64*	-.36*	.08	.15	-.05	.13		
11	.55*	.50*	.69*	.89*	-.11	.33*	.10	.20	.38*	.25	

*Sign. beyond .05 level.
Critical d = .27

As can be seen from Table 39, the Capitalization mean grade placement score was significantly higher than all other sub-scales except Spelling. Spelling, Reading Words and Reading Comprehension had the next highest mean grade placement scores. Punctuation, Arithmetic Problem Solving and Map Reading mean scores were significantly lower than the mean grade placement scores for most of the other areas of the ITBS. Achievement in the work study skills areas of Use of References, Reading Graphs and Tables, and Map Reading, rank 5, 8 and 10 respectively with regard to the other mean scores on the ITBS. Thus their achievement in the work study skills area is significantly lower than from 4 to 9 of the other sub scales. Map Reading and Reading Graphs and Tables are the weakest areas. Of considerable significance is the fact that there is nearly a year difference in grade placement scores between the strongest and weakest areas.

A comparison of the Iowa Tests of Basic Skills subtest mean grade placement scores with expected mean grade placement scores derived by the application of the Horn Formulas to the mean CA and MA for the subjects is reported in Table 40.

As can be observed in Table 36, the subjects are achieving significantly below expectancy in all areas except capitalization. Since the subjects are achieving from .57 to 1.27 years below expectancy, these findings are significant educationally as well as statistically.

Since the results from the Stanford-Binet for each child were used to determine expected achievement, rather than deriving expectancy from a "normal" group, it would be anticipated that the children should be achieving at a level near expectancy. The findings of such gross underachievement suggests that these children have potential for considerable improvement if methods can be found to help them. The challenge to educators is obvious.

Social and Emotional Factors

It is generally accepted that there is a relationship between positive social and emotional adjustment and school achievement, social status within the community and school, maturation, and intellectual ability. The results of the study of the relationships among the variables within the subjects in this study are included in Table 22 along with the interrelationship of other pertinent variables. A brief summarization of these results will consider the relationships between the children's perception of others and such factors as socio-economic status, achievement, various intellectual factors. Following this the relationship between the various types of reaction to frustration will be compared with factors of achievement, socio-economic status, creativity, and perception of others.

Subjects' Perception of Attitudes of Others

Since children of lower-socio-economic status are frequently placed in an unfavorable position in the community, it was believed that the lower the socio-economic status the more they would report negative perceptions of others. Support for this hypothesis is found in the finding that there is a significant relationship in the appropriate direction between socio-economic status and perceived peer relationships, perceived acceptance by parents, and the perceived parent total valuation score. On the other hand, it was found that socio-economic status was not related to the belief that parents are intrinsically interested in them or to the perception that teachers accept or intrinsically value them.

A positive perception of peers was expected to reflect a greater maturity on the part of the subjects which should also be reflected in higher achievement. A portion of this study then was concerned with the relationship between perceived attitudes of peers and achievement. Since only one out of the six correlations with the Stanford Achievement subscores and only four correlations with the eleven Iowa Test of Basic Skills subscores were significantly related to peer perception, it can be said that there apparently is some small but not overwhelming support for this belief.

TABLE XL

COMPARISON OF THE ITBS SUBTEST SCORES FOR 4th, 5th, and 6th GRADES WITH EXPECTED SCORES DERIVED FROM HORN FORMULAS AND STANFORD-BINET (N=82)

		Read.		Grammar				Wk. St. Skill			Arith.	
		Wd.	Comp.	Spell.	Cap.	Punc.	Usuage	Map	Graphs	Ref.	Comp.	Prob.
Attain Ach.	$\bar{X}$	5.69	5.64	5.83	6.03	5.30	5.47	5.24	5.34	5.52	5.39	5.14
Wtd.[1]	s^2	3.05	3.43	3.02	4.51	3.50	4.32	1.58	2.51	2.06	1.69	1.55
Exp.[2] Ach.	$\bar{X}$	6.60	6.60	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
	s^2	1.73	1.73	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Diff.		- .91	- .96	- .57	- .37	-1.10	- .93	-1.16	-1.06	- .88	-1.01	-1.26
t		3.78*	3.84*	2.36*	1.34	4.33*	2.41*	5.71*	4.63*	4.07*	4.90*	6.81*

1. Weights for the variances based on the weights for CA and MA in the appropriate Horn Formulas.

2. Expected grade placement scores based on following Horn Formula and MA derived from the Stanford Binet.

$$\text{Horn Formula Read. Expectancy} = \frac{2MA + CA}{3} - 5$$

$$\text{Horn Formula Arith. Expectancy} = \frac{MA + CA}{2} - 5$$

(The latter formula is also considered to establish reasonable expectancy scores for Grammar and Work St. Skills.)

* Significant beyond .05 level

If a child perceives his parents as being accepting of him and intrinsically interested in him, then it was expected he should be able to achieve more in school. Strong support for this belief is found in the fact that 48 out of 51 possible relationships between achievement and the perceived parent scores were significant beyond the .05 probability level. Thus, it would appear that perception of parents as being accepting of the child is extremely important with regard to the child's achievement.

It was also believed that the perception of the teacher as being accepting of the child and intrinsically interested in the child would be related to success in the classroom. Evaluation of the findings suggest that there is no support for the belief that perception of the teacher as either accepting or intrinsically valuing of the child will be of assistance in enhancing his academic achievement. Nevertheless, when both of these scales are summed, the results tend to provide a general picture of the teacher as being both accepting and intrinsically valuing the child. There is then a suggestion of some relationship with the above factor and academic achievement. Support for this is found in the fact that eight out of seventeen possible relationships between perceived perception of teachers as being accepting and intrinsically interested in the child are significant beyond the .05 level of probability.

Since there is considerable evidence to support the belief that Negroes are subjected to more negative stimulation than others, it is believed that they would perceive peers, parents, and teachers as being less accepting than their white counterparts. From the matrices in table number 18 it can be seen that white children do perceive their peers as being more accepting than do Negro children. Further, the children of white parents perceived themselves as more accepted by their parents and, when total score is considered, as more accepted and more intrinsically valued by their parents than do their Negro counterparts. On the other hand, there is no significant relationship between racial origin and children's perception that their parents value them intrinsically. There is also no relationship between racial origin and the child's perceptions that his teacher is accepting or values him intrinsically.

It was thought that as a child grows older he becomes somewhat more suspicious or concerned about his teachers, parents, and peers and may, in fact, perceive them as being less accepting. Furthermore, there may be some reason to believe that children of lower socio-economic status will become somewhat alienated from their peers, teachers, and parents as they grow older. On the other hand, there is a possibility that since these subjects have higher potential and should do better than other culturally disadvantaged children in their classes, they might remain positively oriented toward others. The findings indicate that there is no relationship between chronological age and perceived peer relationships among the subjects of this study. The older the subjects, however, the more they perceive their parents as accepting and intrinsically valuing of them. Further, the older the subjects the more they perceive their teachers as being accepting. Thus, there is some support for the belief that the children, at least within the age range covered by this study, will feel more accepted and to a lesser extent more intrinsically valued as they grow older.

Since there is some support for the belief that children of higher intellectual abilities tend to get along better with their peers, teachers, and parents, it is believed that there would be a positive relationship between intelligence and perceived peer, teacher, and parent attitudes. The findings indicate that there was a significant relationship between peer acceptance and the Stanford-Binet IQ score. There were also significant relationships between perceived peer acceptance, and the WISC Verbal IQ, WISC Performance IQ, and WISC Total IQ. Thus, there is support for the belief that in culturally disadvantaged children, the higher the intellectual ability the more likely it is that the child will perceive his peers as being accepting.

Children who perceive their parents as being more accepting also tend to be of higher measured intellectual ability since there is a significant relationship between perceived parental acceptance and intellectual ability. On the other hand, no relationship was found between a child's perception that his parents value him for what he is as opposed to what he does. The scale measuring perceived intrinsic-extrinsic valuation is related only to the WISC Verbal IQ. It is not related to the Stanford-Binet IQ, the WISC Performance IQ, or WISC Total IQ. Thus, there is only limited support for the belief in a relationship between intellectual ability and positive perception of parents attitude.

In contrast to the above, there is no apparent relationship between a child's perception of his teachers as being accepting and/or intrinsically valuing and intelligence. This finding, of course, may hold true only for the subjects in this study.

It was also believed that the child's perception of peers, teachers, and parents as accepting of him would be reflected in higher scores on measures of creativity. A child's perception that his peers were accepting of him was not related to any scores on measures of creative thinking. The child's perception of his parents as more accepting and intrinsically interested in him, on the other hand, was significantly related to Fluency, Originality, and Flexibility. Of additional interest is the fact that only one scale did not correlate with the child's perception of his parents as more accepting and intrinsically interested in him. This was the Elaborateness scale which apparently is less related to the other creativity scales and also less related to the more important areas of the academic skills.

It was believed that the child who perceived their teachers as more accepting rather than rejecting and more intrinsically rather than extrinsically interested in him would score significantly higher on measures of creativity. The findings are differential in their effect. It was found that the child's perception of the teacher as more accepting of him was significantly related to productivity on three of the creativity measures. On the other hand, the belief that the teacher was intrinsically interested in the child was not related to production of creative thoughts.

It can be seen that differential responses to the perceived teacher subscales have affected the findings of a significant relationship between the child's score on creativity and his scores on the perceived teacher total score scale; more detailed consideration of these findings is presented in the discussion section.

Attitude of Parents

The mean raw scores of the results of the comparison of parents' responses with the Parent Attitude Research Inventory are reported in Table 42.

Parents' attitudes were obtained by social workers through interviews when possible, with the parents of 60 children (10 selected randomly from each grade level). As will be noted in Table 42. more mothers than fathers responded to the instrument because the fathers were more resistive or more frequently out of the home.

It was believed that attitudes of parents from the UL socio-economic group would be less authoritarian, less hostile, and more democratic than parents from the LL group. Mothers of the UL SES group, when compared with the LL mothers, manifested significantly fewer authoritarian-controlling attitudes (t= 2.61) and significantly fewer hostile-rejecting attitudes (t = 1.94). There was no significant difference between the mothers' groups on the democratic scale. Although the attitudes expressed by fathers' were not significantly different, it may be that some differences do not exist between the groups. If so, these differences may have been masked by the small sample and the possibly biased sample resulting from the refusal of certain fathers to respond to the questions.

The relationship between the PARI scores and certain selected variables can be found in Table 42 (a-c). Caution should be used when interpreting these scores since the N varies with the subtest and the respondent. Note only the underlined relations are significant at the .05 level.

Although a detailed presentation of these results can be found in the discussion section, the following is a brief presentation of major findings.

Authoritarian controlling attitudes were significantly greater in Negroid parents and in mothers of lower socio-economic status. There is a significant negative relationship between the authoritarian controlling attitudes of parents and verbal functioning as measured by the Binet IQ and approrpriate subtests of the WISC Verbal IQ. Hostile - rejecting attitudes were also positively related to Extropunitivess and negatively related to Intropunitiveness. For a more extended interpretation of these findings see the discussion section.

TABLE XLII

DIFFERENCES IN PARENTS ATTITITUDE BETWEEN UPPER-LOWER AND LOWER-LOWER SES GROUPS

Scale	Respondents	Group	X	S^2	t	F
Auth.-Control	Mothers[1]	Upper	206.33	1778.72	2.61*	1.03
		Lower	236.86	1842.25		
	Fathers[1]	Upper	222.39	2570.72	1.35	3.06
		Lower	247.22	840.69		
Hostile-Reject.	Mothers	Upper	69.82	189.03	1.94*	1.11
		Lower	77.00	170.09		
	Fathers	Upper	74.11	216.81	.03	1.56
		Lower	76.22	338.19		
Democratic	Mothers	Upper	51.91	24.02	.64	1.30
		Lower	51.00	31.24		
	Fathers	Upper	51.83	16.97	1.48	1.31
		Lower	53.22	12.94		

* Sign. beyond .05 Level, 2 tail-test.

1 N of Mothers, Upper=33, Lower=22; Fathers, Upper=18, Lower=9

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TABLE XLII(a)

RELATIONSHIPS BETWEEN PARI SCORES AND SELECTED DATA

	Sex	Race	Wtd. SES	Binet CA	Binet MA	Binet IQ	WISC V-IQ	WISC P-IQ	WISC FS-IQ	Inf.	Comp.	Arith.	Sim.	Voc.	PC	PA	BD	CA	Cod.	Peer Perc.
Mother A - C	21	62	42	-04	-27	-49	-65	-54	-68	-51	-38	-23	-38	-67	-36	-42	-43	-22	-19	-18
Mother H - R	01	24	27	07	-06	-31	-37	-21	-33	-38	-20	-21	-07	-34	-24	-10	-17	-16	02	-18
Mother Dem.	-03	-28	-14	12	13	-01	-12	03	-05	07	-26	-30	09	05	09	14	-00	14	-24	01
Father A - C	25	61	28	18	00	-36	-45	-58	-58	-29	-22	-17	-40	-37	-39	-50	-56	-34	-22	-27
Father H - R	-03	32	09	05	-05	-21	-32	-47	-44	-27	-16	-11	-14	-35	-25	-10	-58	-43	-26	-45
Father Dem.	-27	-08	03	15	12	-16	-15	-18	-18	-39	-08	-05	28	-19	06	-27	06	-18	-31	-11

*All results are correlations with decimal points deleted.

TABLE XLII (b)

RELATIONSHIPS BETWEEN PARI SCORES AND SELECTED DATA

	ROSENWEIG																
	E-D	MP	GCR	Inc.	Mo. Ed	Fa. Ed.	Read Voc.	Read. Comp.	Spell.	Cap.	Punc.	Usage	Map Read.	Read.. Para.	Use of Ref.	Comp.	Prob. Solv.
Mother A-C	09	-15	-16	-50	-19	-16	-31	-24	-08	-25	-33	-31	-40	-34	-14	-18	-22
Mother H-R	38	-31	-09	-30	-24	-02	-14	-12	-15	-01	-10	00	-02	24	14	-18	-05
Mother Dem.	12	-15	-05	-07	14	23	12	17	10	20	26	09	19	19	17	16	17
Father A-C	26	-28	-02	-58	-38	-06	22	12	38	-03	-01	-04	-38	-51	-30	11	18
Father H-R.	48	-37	-01	-48	-26	04	-24	-30	-20	-35	-39	-41	-71	-77	-66	-26	-21
Father Dem.	19	-29	-26	-24	-33	-73	-10	-22	-15	-20	-14	-00	-23	-23	-35	-34	-38

.95.

TABLE XLII (c)

RELATIONSHIPS BETWEEN PARI SCORES AND SELECTED DATA

	Par. Acc.	Par. Int.	Par. Tot.	Tea. Acc.	Tea. Int.	Tea. Tot.	Flu.	Ela.	Orig.	Flex.	Stanford WM	Stanford PM	Stanford Spell	Stanford Lang	Stanford Arith Con.	Stanford Arith Con.	Rosenzweig E	Rosenzweig I	Rosenzweig M	Rosenzweig OD
Mother A-C	-16	-21	-22	-14	-16	-03	-11	-16	-07	-04	-31	-35	-19	-29	-19	-40	16	-21	-12	-02
Mother H-R	02	-10	-06	-13	-06	05	-05	-15	04	08	-05	-09	06	-10	-18	-24	38	-40	-31	-26
Mother Dem.	-01	03	02	14	07	04	-16	-15	-10	-15	22	18	08	37	09	16	10	-28	02	-01
Father A-C	-09	15	06	-04	-30	-20	-16	03	-10	-02	-15	-19	07	-22	21	-18	14	-19	-06	-08
Father H-R	-13	-18	-18	-14	-49	-25	05	19	15	11	-09	-20	03	-43	-14	-36	28	-28	-23	-44
Father Dem.	-15	-16	-17	03	-09	36	-30	-53	-21	-25	-09	-17	-18	-15	-14	-16	31	-60	-01	03

Reaction to Frustration

There is reason to believe that children who react to frustration in a conventional manner would be of Caucasian racial origin and of relatively higher socio-economic status, of good ability, higher achievers, and better accepted by significant others than children who utilize less conventional methods of reacting to frustration. Also, it was expected that individuals who were of this personality type would be more productive, creative individuals. Support for this belief would be found through significant relationships between the GCR score on the Rosenzweig Picture Frustration Study and appropriate variables. The findings indicate that there is a significant relationship between the GCR Scale and chronological age, mental age, WISC Verbal IQ, originality, flexibility, peer relationships, perceived parent relationships, and perceived teacher relationships. However, GCR and many of the other variables are related to CA. For a detailed analysis of these relationships see the Discussion Section. In general it can be said that there is a relationship between the child's tendency to deal with frustration in a conventional manner and maturation and perceived interpersonal relationships. There was no demonstrated relationship between GCR and Binet or WISC total IQs, creativity or any of the achievement measures. Thus, reacting to frustrating situations in a rather conventional manner seems to be independent of achievement, ability, socio-economic status, race and sex.

Children who persist in their desire to attain a goal when confronted with frustrating situations were also expected to manifest positive relationships between such variables as intellectual ability, interpersonal relationships, creative thinking and achievement. One way of measuring a child's need to persist toward a goal is through the need persistence (N-P) score on the Rosenzweig Picture Frustration Study. The findings indicate that there is a significant positive relationship between the Need Persistence Scale and chronological age, mental age, WISC Performance IQ, perceived teachers attitudes, flexibility, elaborateness, word meaning, paragraph meaning, and language on the Stanford Achievement Test and Capitalization, Punctuation, and Useage on the Iowa Test of Basic Skills. Need Persistence and many of the other scales, however, were related to CA. For an explanation of these relationships see the Discussion Section. Briefly, there is some support for the belief that Need Persistence is related to maturation and perception of teachers. The Need Persistence Scale is not related to sex, race, socio-economic status, Stanford-Binet IQ, WISC Verbal IQ, WISC Total IQ, Peer Perception, Parent Perception. Fluency, Elaborateness, or Originality Scales. Further, it is not related to achievement as measured by the Spelling and Arithmetic Computation scales of the Stanford Achievement Test or any of the Iowa Tests of Basic Skills except Capitalization, Punctuation, and Useage. There, thus, appears to be somewhat differential findings with regard to the need persistence aspect of personality.

Children who are apparently overwhelmed by frustrating situations were believed to be less mature emotionally. Consequently, it was expected that they would tend to be less successful in their daily living with regard to such things as academic achievement, interpersonal relationships, and creative functioning. The Rosenzweig Obstacle Dominance (OD) scale provides one measure

that appears to be related to a feeling of being overwhelmed by a frustrating situation. Obstacle Dominance had essentially no relationship, except that which might be expected by chance, with the other measures used in this study. It, therefore, appears that the Obstacle Dominance Scale may measure aspects of behavior other than those considered in this study.

Children who over-employ ego defense mechanisms when confronted with frustration, it is believed, will be children who are less emotionally secure and, thus, should be less productive individuals, have greater difficulty with their interpersonal relationships and be less creative. The Ego Defensive (ED) scale of the Rosenzweig Picture Frustration Study provides one measure of this type of behavior. The Ego Defensive Scale was found to be significantly negatively related to any of the other factors investigated in this study including race, sex, and mental age. Therefore, the belief that these children are less happy or effective than others cannot be supported.

It was believed that subjects who tended to project blame for frustrations outward to other persons or things in the environment would find it difficult to get along in many areas. If the above statement is true, then this difficulty should be reflected in the relationships between a tendency to project blame for frustrations outward toward the environment as measured by the Extra-punitive (E) score on the Rosenzweig Picture Frustration Study and other variables. A perusal of the correlational matrix reveals that E is significantly negatively related to perceived peer acceptance and perceived intrinsic parent acceptance. Again, the results were confronted by chronological age as a result. No significant relationships were found between E and perceived teacher, peer or parent attitudes.

With respect to creativity, after partial correlation, no significant relationships were found between E and measures of creativity. Also no significant relationships were found between total E and IQ or race.

In the achievement area, significant negative correlations were found between E and Paragraph Meaning and Arithmetic Computation. No significant correlations were reported between areas of academic functioning and E other than those mentioned above. A significant negative relationship was found between chronological age and E and, mental age and E.

It should be noted that a positive relationship exists between E and socio-economic status suggesting that lower-lower class culturally disadvantaged children have a stronger tendency to direct blame for frustrations outward to the environment than do culturally disadvantaged children of upper-lower socio-economic status.

In contrast to the extrapunitive child, it seemed likely that subjects in this study who tend to internalize blame or turn aggression upon themselves when confronted with frustration will be better socialized and mature, hence, more positive in their perception of interpersonal relationships, and will also perform at a higher level on measures of intellectual ability, academic achievement, and creativity. Children who score high on the Intrapunitive (I) Scale of the Rosenzweig Picture Frustration Study are considered to internalize blame. Intrapunitiveness was found to be significantly related to Chronological Age,

Mental Age, all six scales on the Stanford Achievement Test, and all eleven scales on the Iowa Tests of Basic Skills. Intrapunitive children, therefore, are higher achievers than their counterparts in this study. In addition, significant positive relationships between intrapuntiveness and the child's perception that he is accepted and intrinsically valued by his teachers can be noted. There is no significant relationship intrapunitiveness and race, sex, socio-economic status, measures of intellectual ability, Elaborateness, or perceived peer acceptance. From the foregoing, it can be seen that there is a consistent significant relationship between intrapunitiveness and maturation, achievement and the feeling that significant adults are accepting. There is no relationship between intrapunitiveness and factors such as sex, race, socio-economic status, and intellectual ability. Further apparent relationships between I and creativity and perception of parents disappeared in a partial correlation analysis.

Children who tend to gloss over or deny frustrations were believed to be less able to interact successfully with significant aspects of their daily life than other children, and therefore, were expected to be less productive and successful individuals. High scores on the Impunitive scale (M) of the Rosenzweig Picture Frustration Study were considered to manifest this type of behavior. An examination of the correlation Matrix suggested these children see their parents as intrinsically valuing. Although there were significant relationships between M and socio-economic status, Chronological Age, Flexibility, and the perception that parents intrinsically value the child, these relationships are relatively few in number, hence, should be interpreted with caution. In general then, there is only limited support for the belief that children who score higher on the M Scale will be less productive individuals.

Chapter VI

DISCUSSION OF FINDINGS

The discussion of findings will organized under the following headings: Intellectual Abilities, Creativity, Psycholinguistic Abilities, Academic Achievement, and Social and Emotional Factors.

Intellectual Abilities

It is generally accepted by most researchers who concern themselves with culturally disadvantaged children that, as a group, these children score lower on standardized measures of intellectual ability than do children of middle or upper socio-economic backgrounds. The proportionate sample of subjects included in this study represents a limited segment of the population that is generally considered culturally disadvantaged. Specifically, of those children from six elementary schools within the local school district classified as culturally disadvantaged, only those pupils scoring within the top 20 per cent of their cultural sub-group on an individually administered intelligence tests were selected to participate. Although the cultural biases inherent in the construction of intelligence tests are recognized, it was assumed that since the subjects screened for inclusion in this study were from a culturally homogeneous group, the tests utilized for screening would still yield valid data concerning the potential of individuals relative to the total population screened.

Since the subjects of this study are considered to possess a greater degree of learning potential than other members of their cultural sub-group, it was decided that more meaningful comparisons could be made if intelligence tests and other scores of the group under study were compared with scores expected from individuals scoring on the Stanford-Binet within the top 20 per cent of the general population. Not only would such comparisons provide a clearer picture of how culturally disadvantaged children of higher potential function intellectually and educationally as compared to academically talented children within the total population, but also such comparisons would provide a goal for educators and others who are involved in developing programs that will assure culturally disadvantaged children of the opportunity to fully realize their intellectual and academic potentials.

The prediction that culturally disadvantaged children of higher potential would be found deficient on measures of general intelligence was supported by the findings of this study. The mean score of 114.03 on the Stanford-Binet Intelligence Scale obtained by the subjects of this study was significantly lower ($p < .05$) than the mean Stanford-Binet score of 122.24 established as the expected mean score for the upper 20 percent of the general population. Comparable findings are obtained from the WISC where the group under study earned a Full Scale IQ of 107.91 which was significantly lower ($p < .05$) than the mean Full Scale IQ of 120.85 expected of the upper 20 percent of children in the standardization population. It should be noted that the above findings hold true not only for the total scores on the Stanford-Binet and WISC, but for all the subtest scores on the WISC as well (see Table X). These results support previous findings (Havinghurst, 1944, 1947, 1961; Jones, 1954, Murry, 1945; Janke, 1945) and suggest that cultural influences may have an adverse effect on the measured

intellectual functioning of culturally disadvantaged children of higher intellectual potential as well as culturally disadvantaged children as a total group.

It should be noted that the findings of the present study are educationally as well as statistically significant. On the basis of Stanford-Binet mental age results, the children indluded in this study, at entrance in first grade, would be functioning at a level approximately five months lower than would be expected of children scoring on the Stanford-Binet within the top 20 percent of the general population. By the time these children have reached grade six, their lag in level of intellectual functioning would have increased to approximately one full year. The discrepancy between scores obtained on the WISC by these culturally disadvantaged pupils of higher potential and the scores based on general population expectancies was even greater than that found using the Stanford-Binet. Again, although the cultural bias of intelligence test construction is recognized, intelligence test results are faily valid indicators of school performance, (Eels, et. al 1951). The findings of this study, therefore, emphasize the need for providing culturally disadvantaged children with educational and other programs designed to help them overcome the academically adverse effects of their environment.

To further study the effects of the environmental influence on the intellectual functioning of the culturally disadvantaged pupils of higher potential, the population of this study was divided into two socio-economic sub-groups - - Upper-Lower (UL) and Lower-Lower (LL). A comparison of the mean intelligence test scores of these two sub-groups revealed that the LL group scores significantly lower ($p < .05$) on the Primary Mental Abilities Tests (PMA), Stanford-Binet, WISC, and all WISC and PMA sub-tests than did the UL group. This finding agreed with the hypothesized expectation and provides further evidence of the adverse effect of environmental influence on the development of those abilities measured by commonly used standardized intelligence tests, even within the restricted population investigated in this study.

An analysis of the subjects' performance on the various sub-tests of the WISC and PMA Tests revealed no significant interaction between socio-economic status and the sub-tests of the above two instruments. These findings then, suggest that although the mean scores obtained by the UL and LL sub-groups on the WISC, PMA, and their sub-tests were significantly different, the differences were a matter of "degree" rather than "kind". Thus the children from the LL sub-groups scored significantly lower on intelligence measures than did children from the ULsub-group but the pattern of difference between sub-tests were consistent for the two groups. It is, therefore, possible to evaluate and discuss the subjects' performance on the sub-tests of the WISC and PMA in terms of total group performance rather than to evaluate the performance of the UL and LL sub-groups separately.

It was hypothesized that the children studied would manifest differential development of intellectual abilities. This expectation was supported by findings which revealed significant difference betwenn the subjects' performance on the sub-tests of the WISC and PMA. The children included in this study scored significantly lower ($p < .05$) on the Block Design and Object Assembly sub-tests of the WISC and on the Space sub-tests of the PMA when compared to the other sub-test scores attained on the above two instruments.

It should be noted that those sub-tests on which the subjects had the most difficulty are generally classified as non-verbal, "performance-type" items. The above results are generally consistent with those obtained by Teohan and Drews (1962) who found that southern Negroes scores significantly lower on the non-verbal sub-tests of the WISC than did northern Negroes. Machover (1943) compared sub-test performance on the Wechsler-Bellevue using a group of New York born Negroes and southern born Negroes as subjects and found that Negroes from the south scored lower than the New York Negroes on the Digit Symbol, Block Design, and Picture Arrangements Sub-tests. In a study by Higgens and Silvers (1958) it was found that Negro and white subjects matched on the basis of Binet IQ showed significant differences in favor of the white group when the Colored Ravens Progressive Matrices Test was administered to both groups. It would appear, therefore, that cultural deprivation may well be reflected in lower scores on non-verbal scales. At any rate, performance or non-verbal type tests should not be considered to provide a true measure of intellectual potential when cultural deprivation is suspected. These findings are in contrast to Riessman (1962) who suggests that performance tests should be used whenever possible in order to compensate for vocabulary limitations of deprived children.

The findings of the present and other studies would appear to reinforce Tyler's (1956) hypothesis that culturally disadvantaged children are not able to comprehend and interpret the stimulus material as completely as children from more intellectually stimulating backgrounds. Tyler raises the possibility that a lack of appropriate perceptual stimulation in early childhood adversely affects intellectual development. Bogen (1952) conducted a study on the effect of perceptual training on group IQ scores of elementary pupils in rural schools. Training with stimulating visual materials involving reasoning ability of a perceptual nature resulted in significant gains over control groups in total IQs of the group under study. The suggestion of a possible perceptual developmental lag among the culturally disadvantaged group combined with the favorable results of the Bogen Study indicates that, at least initially, perceptual training may be a worthwhile method of approaching academic remediation problems of culturally disadvantaged children.

On the other hand, the subjects, as a group, attained significantly higher ($p < .05$) scores on the Similarities sub-test of the WISC as compared to their performance on other sub-tests of the Wechsler. If the similarities items are interpreted as measuring verbal concept formation-particularly as the more abstract level-as opposed to other items on the WISC which may demand productions from the subjects in terms of knowledge of relatively specific detail, then the Similarities sub-test may be considered a process variable indicative of underlying potential which is not tapped by other WISC items. Of course, it may be that the stimulus materials of the Similarities sub-tests are more culture fair, hence, yield a more valid measure of potential. In either event a significantly high score on the Similarities sub-test may reflect the presence of underlying intellectual potential and, therefore, be a useful measure in identifying culturally disadvantaged children of higher potential.

An examination of sub-test scores on the PMA reveals that the group under study scored significantly higher on the Verbal Meaning sub-test than on other

measures making up the PMA Battery. This finding is somewhat contradictory to other findings of this study in that the subjects scored relatively low on the Vocabulary measures of the WISC. It is possible that the discrepancy in measures between the WISC and PMA may be a function of test construction and requirements. For example the items making up the Verbal Meaning Sub-test of the PMA are multiple choice and may be somewhat easier for the children included in this study, as success with this type of item requires word recognition but not verbal expression, while the vocabulary items of the WISC require more by way of specific memory and expressive ability in addition to general recognition.

The findings reveal that mental age growth as measured by the Stanford-Binet was significantly greater ($p < .05$) than the subjects' level of functioning on the Space, Reasoning and Number sub-tests of the PMA. In view of other findings of this study, it was not surprising that the pupils making up the sample population found it relatively difficult to handle items comprising the Space sub-test of the PMA. Space is a non-verbal type test and may be considered comparable to the other non-verbal materials with which the children had difficulty in that this test also requires visualization and synthesization of objects on a two or three dimensional plane. In addition, attention to detail also seems required. The foregoing results lend support to the notion that these children may have a perceptual developmental lag possibly based on improper early stimulation in the visual-perceptual area.

Although the pupils comprising the population of this study scored significantly below mental-age expectancy on all the sub-tests of the PMA, with the exception of Verbal Meaning and Perceptual Speed, these findings are based on a comparison of the Binet mental age and the various PMA sub-scores. It should be noted that there is probably a significant difference between perceptual speed and Binet MA. However, a large variance marked this probable difference. Thus it cannot be positively stated until further evidence is obtained.

When an anlysis of variance of the intra-test differences of the PMA is made, the findings differ slightly. The intra test comparisons indicate that the subjects were high on the Verbal Meaning sub-test, low on the Space sub-test, and the three sub-tests of Reasoning, Number and Perceptual Speed seem to be grouped together between extremes. A comparison of the critical differences tables for the WISC and PMA sub-tests (Tables XIII and XV) reveals similar patterning for the Arithmetic sub-test of the WISC and Number sub-test of the PMA in that the mean scores of both sub-tests were within the mid-range when compared to the mean scores obtained for the other sub-test of their respective batteries. On the basis of the data collected, therefore, it would appear that for these culturally disadvantaged children as a total group, the component of intelligence reflected by numerical abilities is neither a particular strength nor outstanding weakness.

If one considers the Reasoning sub-test of the PMA and the Similarities sub-test of the WISC as measuring "process" variables or higher cognitive function, then one might expect pattern agreement between them. A comparison of the WISC and PMA sub-test patterning, however, suggests a basic discrepancy between the Reasoning sub-test of the PMA and the Similarities sub-test of the Wechsler in that the Similarities mean score was highest of all WISC sub-tests while the Reasoning mean score was only in the mid-range. It is postulated that one reasoning for the discrepancy may be found by comparing the tasks required by the respective sub-tests. The Similarities sub-test is primarily a Verbal

Scale while the PMA Reasoning Scale consists of both the Verbal and Figural section. Since the children making up the population of this study appear to find it more difficult to handle items in the general spatial-perceptual area, it is possible that the section dealing with geometrical forms on the Reasoning sub-test had the effect of "pulling down" the total reasoning score while the verbal aspect "pulled up" the total score resulting in the scores falling midway between top and bottom.

It is also possible that the Simlarities sub-test of the WISC and the Reasoning Scale of the PMA may be tapping different "cognitive styles" as set forth by Kegan et al (1963) who studied the various ways in which their subjects grouped objects or pictures of people. In the above study, methods of attacking the grouping problems were identified as: (A) Analytic-in which there was a tendency to group objects in terms of some selected element that they had in common. (e.g., "all the pictures of people having one hand raised"); (B) Inferential-categorical grouping was accomplished on the basis of a common category to which the stimuli belonged (e.g., "all the doctors"); and (C) Relational- objects were grouped on the basis of a functional relation (Maccoby, 1964).

Inspection of the items comprising the Reasoning sub-test of the PMA indicates that these items may require the subject to utilize the "analytic style" while the Wechsler Similarities items can be correctly solved by grouping based on either an analytic or inferrential categorical approach. Furthermore, it would seem that answers to the Wechsler Simlarities Scale derived through the inferential categorical mode of cognition (grouping on the basis of common category such as "fruit, animals, etc.") would generally receive a higher score than answers based on the analytic approach (grouping in terms of a selected element such as "both round, both have a tail, fur", etc.).

Kagan also found the analytic style of grouping to be more closely related to scores on the "Performance" than the Verbal sub-tests of intelligence. It will be recalled the subjects of the present study generally had more difficulty coping with Performance than Verbal items. Although direct evidence to support the notion that these culturally disadvantaged children of high potential tend to rely more on Kegan's "inferential-categorical" cognitive style as opposed to the "analytic style" of cognitive functioning is not strong enough to warrant drawing a definite conclusion, a need for further study along these lines is indicated.

Previous studies (Asher, 1935; Chapanis and Williams, 1945) have found negative relationships between IQ scores and C.A. in culturally depressed populations. Thus, it was hypothesized that culturally disadvantaged children of higher potential would obtain lower intelligence quotients as chronological age increased. An inspection of the correlation matrices revealed no significant relationships between chronological age and intelligence quotients (or scaled scores) derived from the following instruments. Stanford Binet WISC Performance and the WISC Information, Comprehension, Arithmetic and Similarities, Picture Completion, Block Design, Object Assembly and Coding sub-tests. Contrary to expectation, there was a significant positive relationship between chronological age and the intelligence quotients derived from the following scales; WISC Verbal, WISC Total and the WISC Vocabulary and Picture Arrangement sub-tests.

One possible explanation for the finding that vocabulary skills increase with chronological age is that the improvement in vocabulary skills reflects the influence of formalized schooling. Because the children making up the subject population of this study come from culturally disadvantaged homes, it is likely that pre-school verbal stimulation is relatively sparse for these pupils in comparison to children of middle or upper class backgrounds. It can be hypothesized that placing these children in an academic situation where verbal stimulation was greater than that previously experienced resulted in a steady increase in vocabulary skills as they grew older and experienced continually higher levels of verbal stimulation as they progressed through the grades. Again, since these children apparently have relatively greater potential than their cultural peers, it may be that they are able to obtain greater benefit from the stimulation than did their less well endowed peers of similar cultural background.

Further inspection of the correlation matrices indicates that, of all the individual sub-tests of the WISC, the Picture Arrangement sub-test is most strongly related to the Vocabulary sub-test. Although the evidence is not strong enough to make a definite statement, the relationship between Picture Arrangement and Vocabulary suggests the possibility that success on the Picture Arrangement sub-test may be influenced by the development of verbal skills. The requirement that the subject must formulate a logical story from pictured events in order to meet with success on the Picture Arrangement subtest seems to presuppose a general verbal development which lends credence to the belief that formal schooling has had some beneficial effect on verbal development.

It was also expected that of the culturally disadvantaged children of higher potential included in this study, children of Negroid origin would score lower on measures of intellecutal functioning than would their Caucasian peers. Correlations reported in the matrices lend support to the above hypothesis. It can be seen that significant relationships exist between all measures of intellectual functioning and race with the exception of the Arithmetic and Coding sub-tests of the WISC. The relationships, as indicated by the minus sign are such that the Caucasian children scored higher than the Negro children on all standardized intelligence tests and their sub-tests except for Arithmetic and Coding.

A further perusal of the correlation matrices provides some clues as to the possible reason for Negro children attaining lower scores than Caucasian children. It can be noted that a highly significant relationship was found between race and socio-economic status. The direction of the relationship indicates that the Negro children are more likely to come from lower SES homes than the white children included in this study. It is probable that the children of lower SES are, in fact, more disadvantaged with respect to cultural stimulation favorable to the development of skills necessary for higher performance on standardized intelligence tests than are children of high socio-economic backgrounds. Their findings are in agreement with numerous previous studies since the Negro child has had fewer opportunities they would thus score lower, (Haggard, 1954; Clark and Clark, 1953; Price, 1962; Eels, 1953; Pettigrew, 1964).

The hypothesis that male culturally disadvantaged children of higher potential would attain significantly lower scores on measures of intelligence than would

females was generally not supported by the findings of this study. It can be seen on the correlational matrices that no significant relationships exist between intelligence measures and sex with the exception of the Vocabulary and Coding Sub-Test of the WISC. The direction of this relationship between the male and female scores on the Vocabulary sub-tests indicates that females tended to do better than males. On the Coding sub-tests, the males scored somewhat higher than the females.

Creativity

While a survey of the literature reveals an accelerated interest in the area of creativity which has culminated in voluminous research, few studies or theoretical formulations have considered relationships between creativity and low socio-economic status. Several authors however, suggest that creative behavior can be observed in the lower socio-economic class population (Davidson et al; 1962; Riessman, 1962; Torrance, 1962). These reports call attention to the need to investigate the nature and development of such abilities in this segment of the population.

A test of creativity (experimental edition) devised by Torrance and adapted for the Demonstration Project for Gifted Youth (Urbana, Illinois, 1963) was used in an attempt to assess intellecutal functions believed important in "creative" thinking. Scores on this instrument provided quantitative measures of Ideational Fluency, Elaborateness, Originality, and Ideational Flexibility.

Evidence from several other investigations (Torrance, 1962; Getzels and Jackson, 1961) indicate that family and cultural factors play an important role in the development of different styles or approaches to life which has a differential effect on the development of creativity. Torrance reports some studies in which different kinds of developmental curves of creative abilities were found in a number of cultures -- American middle-class, American Southern Negro, Indian, Samoan, and German. These differences have been attributed to cultural or environmental factors rather than to any inherited characteristics.

In an intensive study of a group of high IQ children who were not outstanding in creativity and a group of high creative children who were of above average but not outstanding IQ, Getzels and Jackson noted differences between the two groups in quality of personality. For example, personality differences were reflected in the children's attitudes toward school, family background, choice of friends, etc. Intellectual acquisitiveness and conformity characterized the "high IQ" group while intellectual inventiveness and innovation were more indicative of the "high creative" group. One of the central concepts suggested as differentiating the "high creative" children from the "high IQ" child was the ability or predisposition to "take risks" as opposed to "playing it safe". Willingness to take risks was manifested in a departure or deviation from group ideas, in not being afraid of expressing divergent ideas, and in the production of unique and individualistic results. Several variables which tend to discriminate the "creative" from the "non-creative" family environment have been identified, (Getzels and Jackson, 1961). The mothers in the "non-creative" family tended to recall greater financial difficulties during their childhood and at the present tended to express greater real or imagined personal insecurity than those of the "creative". Mothers in the "non-creative" family were less often employed. Parents of the "non-creative" pupils also tended to see more unfavorable qualities in their children and were less dissatisfied

with their own child-rearing practices. Implication (Gallagher, 1964) from these findings suggest that financial hardships may tend to focus emphasis on monetary success and security as life goals. With parents who are less critical of a child and with a mother who is less often physically present, greater independence in the child may be encouraged. In general, parents in "non-creative" families tended to focus their concern on visible virtues such as cleanliness, good manners, and studiousness while parents of the creative focused on less visible qualities such as the child's openness to experience, his values, and his interests and enthusiasm.

According to Duvall (1946) lower class parents want their children to be neat and clean, to obey, and to respect and please adults while middle class parents want their children to be eager to learn, to love and to confide in the parents, to be happy, and to share and cooperate. Bronfenbrenner (1958) points out that middle class parents are reportedly more acceptant and equalitarian while those in the lower class are oriented toward maintaining order and obedience. The essence of the difference seems to be that lower class parents are concerned with immediate visible attributes of the child's behavior while middle class parents are more attentive to the child's internal qualities (Kohn, 1963).

Similarities may be noted between parental expectations of "non-creative" families and lower class families. Similarly, parental commonalities in expectations can be noted in "creative" families and middle class families. It would appear that the orientation of middle class parents to child-rearing practices is more conducive to the development of characteristics which are necessary for creative thinking than is true of lower class parents. Although the socio-economic range in this study is limited to the lower class, it was believed that the U-L socio-economic group more closely approached middle class standards than the L-L socio-economic group. Thus, it was hypothesized that culturally disadvantaged children of higher potential would attain higher scores on creativity as socio-economic status increases.

Since the raw scores on the creativity subtests are not directly comparable, the raw scores were changed to standard scores with a unit normal distribution in order to permit comparison. In an analysis of variance between the creativity subtest standard scores and socio-economic levels, no significant differences were found between the U-L and L-L socio-economic groups on any of the creativity subtests and there are no significant interactions between socio economic level and creativity subtests. Thus, it appears that the two socio-economic groups do not differ qualitatively. Since the scores had to be normalized and since there are no national norms, no statements can be made as to whether the groups are below norms on any, or all of the subtests.

Since raw scores are used more frequently in reporting qualitative results of studies of creativity and since raw scores of creativity tests are used in determining developmental patterns of creativity, a statistical analysis of the raw scores of the creativity subtests was considered to be appropriate. Differences between the mean raw scores on each of the creativity subtests for each of the two socio-economic groups was tested by a one-way analysis of variance.

As indicated by these analyses of variance, there was no significant differences in scores attained by the U-L socio-economic group and those attained by the L-L socio-economic group for each of the creativity subtests -- Fluency, Originality, and Flexibility. There was, however, a significant difference between the two groups on the Elaborateness subtest. Thus, the hypothesis that culturally disadvantaged children will attain higher scores on creativity as socio-economic status increases, is not supported by the analysis based on standard scores and receives only minimal support from the analysis based on raw scores.

It is quite possible that the measures of creativity utilized in this study are so gross that differences within the limited socio-economic range could not be delineated. Perhaps, within a broader socio-economic spectrum, differences would be evidenced. It is difficult to explain why the U-L children scored higher on the Elaborateness subtests and did not score higher on the three other measures of creativity. One possible explanation is that the Elaborateness test may be measuring persistence and attention to detail rather than the ability to see new and unusual relationships. This post hoc hypothesis should be subjected to further evaluation before acceptance.

Differences between the mean raw scores for the grade levels on each of the creativity subtests were tested by a one-way analysis of variance. Significant differences were found between grade levels for each of the subtests. On the basis of the developmental curves based on mean scores the following patterns can be observed for each of the subtests: (1) Fluency -- children seem to make progress in grades K, 1 and 2, level off at grade 3, and resume progress through grades 4 to 6; (2) Elaborateness - - children progress markedly up through grade 3 where there is a sharp decline followed by a plateau in grades 4 through 6; (3) Originality - - progress is indicated in grades K through 2 with a plateau effect in grades 2 and 3 followed by continuous progress through grade 6; (4) Flexibility - - children's progress in grades K through 2 with a plateau effect in grades 2 through 4 followed by improvement through 6. See Graphs 2 - 5.

It should be noted that the growth pattern suggested by the elaborateness scores differs from the patterns of the other three scales. It may well be that the style of response to the stimuli changes radically at about the fourth grade level and thus, although the child's response might be considered to be qualitatively better, it contains fewer specific details, hence, receives a lower score according to the scoring criteria.

In general, for the subjects in this study, growth in creativity seems to be arrested or declines at the second or thrid grade levels with recovery at the third or fourth grade. These findings are somewhat consistent, although earlier, than those reported by Torrance (1962) in which middle class children showed specific periods of decline at about ages 5, 9 and 12 with the most acute decline at about age nine or in the fourth grade. In a southern Negro sample from segregated schools, on the other hand, Torrance reports a slight drop in the developmental curve between the second and third grades with considerable growth between the third and fourth grades.

Torrance (1962) has suggested that the discontinuity in growth observed at about age nine, when the child reaches the fourth grade, may be attributable to several things that happen at the fourth grade level in school. In his study a number of children reported that there were many influences which they

felt coerced them to become less imaginative, curious and original in their thinking. At this time, classroom activity becomes more organized and formal, subject matter is different, homework is assigned, papers are expected to be neat, credit is received for what is put on paper, and more mature and conforming behavior is expected. It may be that middle class children have had many experiences in the home which have helped prepare them for school, hence find the general acitivities in grade K through 3 to be interesting but not overly demanding. Academic damands of a specific nature which markedly increased in grade 4, tend to temporarily overwhelm them and thus lower creativity. On the other hand, lower class children lack preparation for school, hence, become overwhelmed at an earlier age.

Evidence from studies (Torrance, 1962; Iscoe and Pierce-Jones, 1964) involving the assessment of creativity in different cultural or sub-cultural groups indicates a differential development in creative ability between Negro and white children. Implications from various research findings suggest that the different family expectations of these two races can play an important role in the development of characteristics contributing to creative thinking. Of course, since race is confounded with SES in the general culture, expectations associated with SES may cause the difference.

The Negro family is said to be even more authoritarian in nature than is that of the lower class generally (Ausubel,1963). Negro children are expected to be obedient and submissive and insubordination is suppressed by harsh and often brutal physical punishment (Dai, 1949; Hill, 1957). From a broader cultural viewpoint, the Negro child has unfortunately been subjected to an inferior caste status and almost inevitably has acquired a negative self-esteem, (Ausubel, 1963). These family patterns and personality characteristics appear not to favor the development of independent behavior and the emergence of risk-taking characteristics, or to provide a sense of security that would foster departure from group ideas in terms of divergent thinking.

Thus, on the basis of research evidence obtained through studies of cultural status and family child-rearing practices, it was hypothesized that there would be a significant difference between races on measures of creativity. Since no relationship was found between race any of the creativity subtests, the hypothesis was rejected.

Longitudinal studies reported by Sears et al, (1957) and Bayley and Schaefer (1960) stress the marked differences in the developmental patterns of boys and girls which result from the different social roles and different life patterns imposed by both family and culture. Suggestions are that the social expectations for girls tend to inhibit the development of creative thinking or the expression of divergent ideas (Gallagher, 1964; Torrance, 1959). Indications of this differential development is found in the area of school achievement where girls do as well or better than boys but, in adulthood produce relatively few high-level creative scientists, writers, etc. Thus, a significant difference in scores on the creativity measures for boys and girls was expected. This expectation was not confirmed since no significant correlations between sex and the creativity subtests were obtained.

On the premise that the child who perceives himself as accepted by others would be confident in himself and his ability and would feel secure in risking the expression of divergent ideas, a positive relationship between creativity and perceived attitudes of others -- peer, parent and teacher -- was expected.

No relationship was found between perceived peer attitudes and any of the measures of creativity. On the other hand, the child's perception of his parents as accepting and intrinsically interested in him was significantly related to the Fluency, Originality and Flexibility subtests but not Elaborateness. Furthermore, there was a significant relationship between perceived teacher acceptance and the Fluency, Originality and Elaborateness subtests but not Flexibility. Although all the above relationships appeared to be significant, there was considerable confounding with chronological age. When chronological age was held constant through partial correlation in each of the above relationships, all of the relationships were found to be non-significant. The hypothesis concerning expected relationships between creativity and perceived parent, teacher and peer attitudes was not confirmed.

Available research results support the conclusion that the correlation between measures of creativity and intelligence is positive but low in the gifted populations (Barron, 1957; Flanagan, 1959: Getzels and Jackson, 1959; Karnes et al 1961; Torrance, 1959; Yamamoto, 1961). While the results of most studies indicate that the highly intelligent child is not always the most creative, there are suggestions (Anderson, 1960; Torrance, 1961) that a certain level of intellectual ability is necessary for creative thinking. Thus, it was believed that there would be a significant relationship between measures of creativity and intellectual ability for the subjects of this study. While this expectation was not confirmed when the measures of creativity and the Stanford-Binet IQ were considered, there was a significant relationship between each of the four subtests of the creativity test and WISC Verbal IQ, WISC Performance IQ and WISC Total IQ. The reason for the relationship between the creativity subtests and WISC IQs but not Stanford-Binet IQ is uncertain.

A comparison of the relationships between the WISC subtests and the creativity subtests reveals the following: (1) Fluency with Arithmetic, Similarities, Vocabulary, Picture Arrangement, and Coding; (2) Elaborateness with Vocabulary, Picture Completion, and Picture Arrangement; (3) Originality with Arithmetic, Vocabulary and Picture Arrangement and (4) Flexibility with Vocabulary, Picture Arrangement, and Coding. As can be seen, two WISC subtests, Vocabulary and Picture Arrangement, are related to each of the creativity subtests. According to the results of a factor analytic study of the Wechsler Bellevue Intelligence Scale (Davis, 1956), the Vocabulary subtests is related to a verbal comprehension factor and supposedly refelects the range of ideas, memories, and relationships an individual has acquired and organized into verbal meanings (Maymon et al 1951). Results of a factor analytic study of the WAIS (Cohen, 1957) provides evidence to suggest that Picture Arrangement might well be related to a verbal comprehension factor. Also, the relationship between Vocabulary and Picture Arrangement in this study suggests the possibility that success on Picture Arrangement may be influenced by the development of verbal skills which are possibly learned through school training. Thus, verbal abilities would seem to be involved in creativity as measured by the instrument used in this study.

After considering the relationship between Vocabulary and Picture Arrangement and the Creativity Subtests, certain residual relationships suggest important but still to be validated ideas. For example, the relationship between fluency

and arithmetic suggest that fluent individuals may focus on specific details. The relationship between fluency and similarities suggest that fluent individuals find it easy to perceive commonalities in selected aspects of their environment. (A can is seen as holding plums, pears, tomatoes, etc.). The possible relationship between fluency and coding is less obvious, but the fluent person may quickly establish a relationship between two concepts and thus do well in a coding task.

The relationship between the Elaborateness subtest and Picture Completion subtest might have been expected on the basis that success on both subtests involves a perception of and attention to detail and possibly the ability for visual organization and integration.

The apparent relationship between Originality and Arithmetic remains a puzzle. The relationship between Flexibility and Coding suggest that individuals who do well on the coding task must maintain a posture which involves them to shift quickly from one cue response set to another without productive inhibition.

Results of several studies (Getzels and Jackson, 1959; Torrance 1959; Yamamoto, 1960) provide evidence which indicates a positive relationship between creativity and achievement in gifted subjects. Torrance (1960), on the other hand, obtained results with children whose IQ levels ranged from 100 to 150 on various tests of intelligence. Therefore, it was hypothesized that children in this study would attain significantly higher scores on achievement tests as creativity scores increased.

The Stanford Achievement Test Battery was administered to the subjects in grades two through six and the Iowa Test of Basic Skills was administered to the fourth, fifth, and sixth grade children. Although many of the relationships between the subtests of the achievement tests and creativity subtests appeared significant, there was considerable confounding with chronological age. When chronological age was held constant through partial correlation in each of the relationships, only the relationships between the Stanford Word Meaning and Paragraph Meaning subtests and the Flexibility subtest were found to be significant. Thus, with the exception of these two relationships, the expectation that children would attain significantly higher scores on achievement tests as creativity increased was not confirmed.

Psycholinguistic Abilities

From a review of the literature (Deutsch, 1964b; Weaver, 1963; John, 1963; Irwin, 1948; Bernstein, 1960; Anastasi, 1952), it is apparent that culturally disadvantaged children are deficient in language. No studies were found, however, that investigated the psycholinguistic patterns of culturally disadvantaged children of higher potential. Since this study was concerned with determining the components of an educational program for these children and since the language area is of major concern, it was deemed appropriate to evaluate psycholinguistic functioning as one aspect of this investigation.

It was hypothesized that these subjects would be markedly deficient in psycholinguistic abilities. It was found that when these children were compared with the top 20 per cent of the children in the norm group on both language age and standard scores, the subjects were markedly below expectancy on all nine subtests. Thus, this hypothesis was confirmed.

It was also hypothesized that there would be differential development in psycholinguistic abilities. The findings, when langauge age scores are utilized, indicate that there is a significant differential development of the psycholinguistic abilities of these children. It was found that according to language age scores the children had average language ages of 6.9 to 7.0 in the Vocal Encoding, Auditory Vocal Sequential, and Visual Decoding areas which can be viewed as relative strengths. According to language age scores, areas of relative weaknesses appeared to be in the Motor Encoding, Auditory Vocal Automatic, and Visual Motor Association in which the children attained mean language age scores of 6.2 to 6.3.

If the mental age is used to establish a child's expected level of functioning and if there is no differential effect from deprivation or other factors, it would be expected that the mean language ages should be comparable to the mean meatal age attained on the Binet. The mean chronological age of the group was 6.2 and the mean mental age for the group was 7.1. In comparing the mean language ages with mean Binet mental age, it was found that differential results were obtained. The Visual Decoding, Vocal Encoding, and Auditory Vocal Sequential mean language age scores did not differ from the Binet mean MA scores. On the other hand, the mean language ages for the Motor Encoding, Visual Motor Association, Auditory Vocal Automatic, and Visual Motor Sequential subtests were significantly different from the mean Binet MA. It would appear that these culturally disadvantaged children do score differentially on the ITPA, thus confirming this hypothesis.

On the other hand, when the standard scores method of analyzing the data is used and these results are compared with the standard score equivalent of the IQ, the ITPA scores in all areas are significantly below the IQ derived from the Binet. Thus, a teacher who utilizes the language age scores in the development of an instructional program may be faced with somewhat different problems than the teacher who uses the standard score method.

A comparison of the results obtained by using the Language Age scores and Standard Scores in analyzing ITPA results indicates that there is some agreement between the two methods in that Visual Decoding was a "strength" on both scales while Motor Encoding, Visual Motor Association and Auditory Vocal Automatic were "weaknesses" on both. Also a "neutral" or "mid-finding" was found on both scales in Auditory Vocal Association. Discrepancies were found in the Vocal Encoding, Auditory Vocal Sequential, Auditory Decoding and Visual Motor Sequential Areas. According to the Language Age score, the Auditory decoding was a high "neutral", while according to the Standard Score method it was a "weakness". Ranking the mean subtest scores obtained according to each of the scoring methods and re-ranking the summed ranks, indicated that the auditory decoding scores fell in the middle of the distribution. Hence it was decided to consider Auditory Decoding as a "neutral" finding. The Visual Motor Sequential area was significantly low according to standard scores and approached being a significant "weakness" according to the language method. A review of the patterning suggests that the Visual-Motor Sequential area should be considered an area of weakness. According to Language Age scores, the Auditory-Vocal Sequential mean score was significantly high, however, the Standard Score was a solid "natural". It was felt that the Language Age score might be somewhat biased and thus it was decided to consider this as a qualified "neutral". According to Language Age Scores, Vocal Encoding was a strength, but was only a high neutral according to the standard scores. In view of the high rank order of the score when both methods are utilized, it seemed best to consider it a "strength". In summary, the strengths were considered to be Visual Decoding and Vocal Encoding, with Auditory-Vocal Sequential a high "neutral". Weaknesses were in the Motor Encoding, Visual Motor Association, Auditory Vocal Automatic and Visual Motor Sequential areas.

Weaver (1963) reported that the Auditory Vocal subtest scores were lower than the Visual Motor subtest scores. The results of the present study suggest that the culturally disadvantaged subjects of higher potential are relatively high in the Visual Decoding and Vocal Encoding and relatively low in Visual Motor Association, Motor Encoding, Auditory Vocal Automatic, and Visual Motor Sequential. The findings of these two studies are not in total agreement. The Auditory-Vocal Automatic scores were found to be weaknesses in both studies; however, contrary to Weaver, the Visual-Motor subtest scores were significantly lower than the Visual Decoding subtest scores in the present study. The findings of this study on culturally disadvantaged of higher potential also indicate that these children were relatively strong in Vocal Encoding and relatively deficient in Motor Encoding. One might conjecture that since Weaver's subjects were all Negroes, race might explain the differences. A review of the findings indicate that race was associated with Auditory Vocal Automatic, Visual-Motor Sequential, and Auditory-Vocal Association. Since only one of the unqualified low subtests (Auditory Vocal Automatic) and one qualified low subtest (Visual-Motor Sequential) were related to race and two low subscales (Visual Motor Association and Motor Encoding) were not related to race and one neutral subtest (Auditory Vocal Association) was related to race, it would seem that race does not account for these findings. These findings did not appear to be associated only with those scales which were related to race in this study. It would appear then that some other factors such as a southern versus a northern culture, different educational programs, different children rearing practices, and different levels of intellectual ability might be factors contributing to differences in ITPA performance.

Simmel and Mueller (1962) found correlations of -.53 to -.62 between the ITPA subtests and MA among their mentally retarded subjects with IQ's ranging from 20 to 80. In the present study significant relationships were found only between MA and Auditory Vocal Association (.35) and Auditory Decoding (.35). One possible explanation for lack of other significant relationships might be due to the homogeneity of the subject population in this study. The homogeneous method of selection of this population may have reduced the effect of some of the variables that might otherwise have permitted the demonstration of larger correlations between MA and ITPA subtest scores. This suggests that, in general the ITPA is getting at factors other than those assessed by the Stanford-Binet and WISC when used with such a homogeneous population of higher potential.

It was hypothesized that there would be a significant relationship between socio-economic status and psycholinguistic abilities. The findings indicate that there was a significant relationship between Auditory Vocal Association and socio-economic status and Visual Motor Sequential and socio-economic status. There was, however, a significant relationship between race and socio-economic status (.65) within the selected sample. Partial correlations between Auditory Vocal Association and socio-economic status and Visual Motor Sequential and socio-economic status controlling for race indicate that the relationships between these two ITPA scales and socio-economic status are attributable to race rather than to socio-economic status. There was no relationship between the socio-economic status and the other ITPA subtests. It may be that the other ITPA scales are related to SES in a heterogeneous population, however, the hypothesized relationships were not demonstrated in this study which involves a homogeneous population.

It was hypothesized that there would be significant differences in scores on tests of psycholinguistic abilities with respect to sex. This hypothesis was refuted since no significant relationships were established. Anastasi (1952) found that there was a significant correlation between sex and race, such that girls surpassed boys among whites in language development, while the reverse was true among Negroes. Since approximately equal numbers of boys and girls from both the Caucasian and Negro races made up the subject population of this study, it may well be the reversal effect found by Anastasi is "washing out" any sex relationship. The small N discourages any valid testing of this possible relationship.

It was hypothesized that there would be a differential relationship between measured intellectual abilities and psycholinguistic abilities. There were significant relationships between the Auditory Vocal Automatic, Auditory Vocal Association, and Auditory Decoding subtests and the Stanford-Binet IQ and the WISC Verbal, Performance and Total IQ's. While these findings suggest some relationships between psycholinguistic abilities reflected by the above ITPA subtests and measures of general intelligence, none of the other ITPA subtest scales were related to these major measures of intellectual ability. A comparison of the ITPA and WISC Subscales yielded only a few significant relationships. Since there were only a few significant relationships between the WISC subscales and the ITPA subscales, caution should be observed to avoid making a "Type II" error in interpreting results. One finding of the WISC - ITPA comparison was the Auditory Vocal Automatic subscale was related to Vocabulary, Picture Arrangement, and Block Design. It might be that the relationships between the Auditory Vocal Automatic and the Vocabulary and the Picture Arrangement Scales are attributable to verbal understandings. The relationships between the Auditory Vocal Automatic and Block Design subscales is more difficult to interpret. Evaluation of this relationship suggests that the most parsimonious explanation might be that the relationship between Auditory Vocal Automatic and Block Design reflects a commonly held relationship associated with race. A partial correlation controlling for the relationship with race reduced the obtained correlation between Auditory Vocal Automatic and Block Design to one that does not reach significance. A similar comparison revealed that race had no effect on the relationships between Auditory Vocal Automatic and Vocabulary or Picture Arrangement in this population. Thus there is support for the post hoc belief that the relationships between Auditory Vocal Automatic and Vocabulary and Picture Arrangement are due to verbal factors.

Motor Encoding is significantly related only to the Picture Completion subscale. Although this could be a chance relationship, a much more tenable belief is that each is measuring the child's ability to comprehend visually presented stimuli which are concerned with concepts that are commonly available in the average environment.

The Auditory Vocal Association scale is related to Picture Arrangement, Object Assembly and Information. One of the possible explanations for these relationships is that children who do well on these measures will have learned a certain amount of average, concrete information which enables them to make the necessary associations.

Auditory Decoding is related to the WISC Vocabulary. It is apparent that a child must be able to understand auditorily presented material at this age level if he is to obtain a high score in the vocabulary test of the WISC.

In summary, the ITPA is related differentially to the WISC subscales and to the Stanford-Binet, such that a few of the ITPA subscales seem to be tapping areas that are tapped by the WISC or Stanford-Binet while others assess areas that are not measured by the WISC or the Stanford-Binet.

Academic Achievement

One of the major concerns of this study was to investigate the academic attainments of the children and the relationships of these attainments with the other major variables in the study. Factors associated with the socio-economic status are of prime importance in the present study. Hill and Giammatteo (1963), Currey (1962), Sexton (1961), and many other researchers have found that the rate of achievement of children of lower socio-economic levels is slower than the rate of children from higher socio-economic levels. In view of these findings, it was hypothesized that the children of lower-lower socio-economic status would attain poorer scores on achievement tests than children of upper-lower socio-economic status.

When socio-economic status is correlated with the various achievement subtests on the Stanford Achievement Test, socio-economic status was found to be related to the Stanford Word Meaning and Paragraph Meaning subtests. Although race was also related to socio-economic status, a partial correlation between socio-economic status and the Stanford Achievement Word Meaning and Paragraph Meaning subtests with race held constant indicated that there was still a significant relationship (.16) between socio-economic status and Word Meaning and Paragraph Meaning.

A determination of the relationships between the Iowa Test of Basic Skills subtests and socio-economic status indicates that there is a relationship only between socio-economic status and the Vocabulary subtest. Again, although there is also a significant relationship between race and the Vocabulary subtest, a partial correlation indicates that there is still a small but significant correlation between the Iowa Test of Basic Skills .Vocabulary section and the socio-economic status of the children even when race is held constant. From these findings, it would appear for the children included in this sample, there is a relationship only between reading vocabulary scores and socio-economic status. Although these results appear to contradict the findings of Hill and Giammetteo (1963) Sexton, (1961) and others it should be remembered that this is a restricted population both in terms of ability and socio-economic status and thus for this sample, it is not too surprising to find that there is no relationship between socio-economic status and achievement other than with vocabulary. These findin.., in one sense, are similar to those of Currey (1962) who found no relationships between socio-economic status and scholastic achievement among his high intelligence group. One major difference between this study and Currey's study might be associated with differences in the selection of subjects. Currey selected his subjects on the basis of CTMM scores. The findings of this study, however, suggest that scores on measures of intellectual functioning are related to socio-economic status. Thus the method of selection of Currey's subjects,,who ever selected according to their CTMM Scores in an attempt to provide matched IQ groups, differes significantly from the method used in this study.

In support of their belief, a persual of Currey's tables suggests that the selection of his subject was biased by the relationship between SES and scores

on group achievement tests. Our extention of their interpretation suggests that the children in Currey's high ability low SES group were the most highly talented in their SES group since only a relatively few met the cut off criteria and, then, could be classified as of high ability. Thus, Currey's high ability - high SES group probably contains children who are moderately talented and highly intellectually stimulated as well as the highly talented and highly stimulated child. His high IQ - low SES group, on the other hand, probably includes the highly talented, poorly stimulated child, but does not contain the moderately talented, poorly stimulated child. Also a ceiling effect may have effected the results of Currey's highly talented - highly stimulated individuals. Thus, SES has an effect on the achievement of potentially intellectually talented children.

The preceeding findings were based upon the scores obtained from all of the subjects in this study who have been administered the achievement test appropriate for their age, grade placement and level of achievement. It was also considered desirable to determine whether or not there was differential functioning between selected achievement and differences in socio-economic status. Since some of the subtests administered at the first or second grade level in the Stanford Battery are not designed for administration at a high level and some subtests are not designed for administration until late in the elementary program, only subtests that cover a wide range of grade placement were selected for comparisons through an analysis of variance. The subtests selected for comparison were Word Meaning, Paragraph Meaning, Spelling, Language, Arithmetic Computation and Arithmetic Concepts. The findings of the analysis of variance indicate that there was a significant interaction between socio-economic status and the subtests. Such a finding indicates that an additional analysis should be made to determine the differences in achievement for the UL socio-economic children and the difference in the achievement patterning of LL children. According to the results, the children from the UL socio-economic group achieved at significantly higher levels in the areas of Spelling, Word Meaning and Arithmetic Concepts. They achieved significantly lower in the Arithmetic Computation and Language areas and scored at a mid position in Paragraph Meaning. Thus, it can be seen that the UL children function best in areas that they can handle in a concrete way. These findings somewhat contradict the findings of others which suggest that disadvantaged children perform lower in reading than in arithmetic. On the other hand, some investigators found no differences in functioning in reading and arithmetic. One other possibly confounding problem is that these differences may be a function of the methods used in instructing the children in this study within the present school program which is essentially based on a phonics approach to teaching reading and a standard approach to teaching arithmetic. Findings might be somewhat different in other school systems where a different curriculum exists.

In addition to the findings that these children function differentially on the Stanford Achievement Test Subtests, it seemed important to determine the discrepancies, if any, between the actual achievement of these children and expected achievement derived from other means of development. The Horn Formulas,

(1941) which are based on differentially weighted chronological and mental age scores, were used to compute the expected reading, arithmetic, spelling and language grade placement scores. A comparison of the attained achievement mean score with the expected achievement mean score based on the Stanford-Binet CA and MA indicated that children of the upper-lower socio-economic group were achieving from three-fourth to one full year below expectancy in all areas except spelling. Thus, it can be seen that these children are underachieving even on the basis of expectancies derived from Horn Formula unexpected scores utilizing data from individually administered tests. Furthermore, it should be noted that scores attained by the children on individual measures have been shown to be markedly beneath the scores expected of children in the top 20 percent of the population. Thus the hypotheses were confirmed that there was differential functioning in these children associated with socio-economic status, and that these children were achieving below expectancy in almost every area.

As was mentioned previously, an analysis of variance of the Stanford Achievement subtests indicated that there was a significant interaction between socio-economic status and the subtests. Consequently, further analysis of the differences within the LL socio-economic level was made. The findings indicate that there were some differences between the subtest scores attained by the children of the LL socio-economic level, however, these differences were not as marked as those found for the UL group. For the LL group, only the Arithmetic Concepts score was significantly higher than any of the other scores, while the Paragraph Meaning subtest mean score was significantly lower than the other scores. Thus, it can be seen that Spelling, Language and Arithmetic Computation tended to be the mid level of functioning for these children. These findings are somewhat different from the findings obtained for the UL group where Paragraph Meaning was at the mid level of functioning (instead of the low) and Spelling and Word Meaning were high (instead of in the mid range) and Arithmetic Computation was a low achievement area (instead of the mid range for the lower-lower socio-economic level children).

Again, it was considered desirable to compare the attainments of the LL socio-economic group with the expected achievement derived from the Horn Formulas. Results of this analysis indicate that the children of the LL group achieved significantly below expectancy in all areas except Arithmetic Concepts. This, of course, is an extremely significant finding, educationally, since the children are underachieving by .7 to 1.1 years.

An additional assessment of the academic attainments of the children in this project was also gained through the administration of the Iowa Test of Basic Skills (ITBS). This test, is designed for use with children who are in the third, fourth, fifth and sixth grades. It was decided to administer the complete battery to the children who were in the fourth, fifth and sixth grades. An analysis of variance of the ITBS scores of these children indicates that there was no difference between the achievement levels of the subjects from UL and LL socio-economic groups. Further, there was no interaction between the Iowa Test of Basic Skills subtests and the socio-economic variable. Thus it was considered appropriate to consider these subjects only as coming from one sub-group and to evaluate differences between the achievement subtests for the total group.

The findings indicate that the fourth, fifth and sixth graders in this study obtain their highest academic achievement in Capitalization and somewhat lower attainments in the areas of spelling, word reading, reading comprehension. The children were significantly low in areas of Punctuation, Arithmetic Problem Solving and Map Reading. Achievement in the work study skills areas of the Use of Reference, Reading Graphs and Tables and Map Reading rank 5, 8 and 9 respectively with regard to the other mean scores of the ITBS. Thus it might be said that the achievement in the Work Study Skills areas is significantly lower than the average of the other sub scales. Of additional significance is the fact that there was a full year's difference in the grade placement scores between the strongest and the weakest areas. These findings differ from those of Sexton (1961) who found that the scores of lower income children were depressed in the reading subtest areas while their scores on the Work Study Skills and the Arithmetic sections were relative to the composite scores, better than those of upper income groups. These differences may be attributable to the possibility that Sexton used a random sample of children while the subjects in the present study were of above average potential. Another possible reason for the differences is that the children in this study may have been provided with a curriculum different from the curriculum provided the children in Sexton's study.

From the preceeding findings it can be seen that these children did not necessarily score significantly lower in reading than in arithmetic computation or spelling. Thus this hypothesis was not confirmed. In contrast, it would appear that culturally disadvantaged children of higher potential might attain better scores in the reading area than had been previously believed. This differential finding might be a function of differences among the curricular offerings rather than differences among the children. Further, it would appear that these children are able to do better with the less demanding reading task of reading words or short sentences as compared with comprehending paragraphs.

Comparison of the scores attained by the children on the Iowa Test of Basic Skills with the expectancies derived from the Horn Formulas indicates that the subjects are achieving significantly below expectancy in all areas except Capitalization. Again, the subjects are underachieving from .6 to 1.3 years which is educationally significant. It should be noted that the expectancy scores obtained from these children using the Horn Formulas are probably depressed by factors associated with cultural deprivation. Hence, these children are neither achieving at the level that might be expected of them according to their position in the top 20 per cent of the population or at the less demanding level established by their own functioning upon individual measures of intellectual ability which, of course, are affected by lack of experiences due to their cultural deprivation. Thus again, there is support for the hypothesis that these children will not achieve at a level that might be expected according to measures of their intellectual ability.

It was hypothesized that Negro children would attain significantly lower scores on achievement tests than did their Caucasian peers. A review of the findings indicate that there was a significant relationship only between racial origin and Stanford Word Meaning, Stanford Paragraph Meaning, Iowa Vocabulary and Iowa Map Reading subtests. Thus this hypothesis was supported in only four out of seventeen possible areas. It should also be noted that two of the areas, Stanford Word Meaning and Iowa Vocabulary are similar.

These findings lend differential support to this hypothesis to the extent that it might be said that racial group membership among children of lower socio-economic status is associated with success in reading, particularly the Word Meaning area, but is not associated with success in other areas. Thus it might be said that children of lower socio-economic status of Negro origin attain as well as similar children of Caucasian origin.

One of the frequent findings of studies such as the New York City investigation (Public Education Association, 1955) is that Negro children are frequently reported to achieve at a lower rate than other groups. In line with previous findings, it was hypothesized that children of the Negro race would do less well on achievement tests than did their Caucasian comparison group. The findings indicate that only two of six of the relationships between the Stanford Achievement subtests (Word Meaning and Paragraph Meaning) and race were significant. In addition, it was found that there was also a significant relationship between the Stanford sub tests of Word Meaning and Paragraph Meaning and socio-economic status. When the effects of socio-economic status are controlled through partial correlation methods, it was found that no significant relationship obtained between race and achievement.

When achievement was measured by the Iowa Test of Basic Skills, only two of the eleven possible re ationships between achievement (Vocabulary and Oral Reading) and race were significant. Again, when the relationship with socio-economic status was controlled through partial correlations, it was found that there was no significant relationship between the Iowa Test of Basic Skills subtests -- Vocabulary and Map Reading -- and race. The hypothesis of a significant relationship between race and achievement is therefore rejected. Too frequently, it would appear that previous findings showing a relationship between race and achievement might be a function of the children coming from lower socio-economic homes wherein there is limited intellectual stimulation rather than because of race per se.

Fowler (1957) investigated pupils performance on several conventional and culture-controlled mental scales. The findings indicated that girls tended to do better than boys on the Henmon Nelson and Detroit Alpha Test. Other findings generally (Olson, 1959; Smith, 1941; Tyler, 1947) indicate that girls tend to do better on the verbal activities whereas boys tend to do better on arithmetic and performance types of activities. From this it was felt that there might be a relationship between sex and academic achievement. The findings indicate that the Stanford Spelling and Arithmetic Computation subtests were related to sex such that girls tended to do better than the boys on both of these measures. On the Iowa Test of Basic Skills, the girls tended to do better than boys on Comprehension, Spelling, Capitalization, Punctuation, Usage, Graphs, and References. It should be noted that the Iowa Test of Basic Skills was administered to only the fourth, fifth and sixth graders whereas the Stanford was administered to children in grades two through six. Thus it appears that when girls do better than boys they manifest their greatest superiority at the upper elementary grades levels. These findings are congruent with those of other investigations (Olson, 1959; Tyler, 1947) who have shown that girls tend to do better than boys in the elementary schools, possibly as a result of their maturation. The findings, therefore, support the hypothesis that there is a relationship between academic achievement and sex. Furthermore, the findings suggest that girls of high potential from a culturally disadvantaged population will tend to do better than boys on certain tasks.

It was hypothesized that there would be a significant relationship between academic achievement and intelligence quotients. Previous studies such as that of St. John (1930) have shown that relationships between IQ scores and achievement scores tend to cluster around .50. It should be noted that this finding was derived from a heterogeneous population, while the population of this study was more restricted.

Roberts (1965) in a review of the literature describes numerous studies that report relationships of .40 to .50 between various measures of ability, such as the SAT, and college grades for Negro students. An important consideration is that these findings are obtained from a more homogeneous population, bright Negores, who are similar to those in the present study.

The present findings indicate that the Stanford-Binet IQ scores were related significantly to all of the subtests of the Stanford Achievement Test and Iowa Test of Basic Skills. The Binet IQ was most highly related to the Language and Arithmetic Concepts sections of the Stanford Achievement Test and the Comprehension and to a lesser extent the Vocabulary and Language Usage sections of the Iowa Test of Basic Skills. In general, the Stanford-Binet IQ scores tended to be least related to the Spelling and Arithmetic Computation sections of the Stanford and the Iowa.

The WISC Verbal IQ was also related to all of the subtests of the Stanford Achievement and Iowa Test of Basic Skills. In almost every instance, however, the relationship between the WISC Verbal IQ and achievement was higher than was the relationship between the Stanford-Binet IQ and achievement. The difference was somewhat striking. For example, the median relationship between the Stanford-Binet IQ and the Stanford Achievement subtests was .25, while the median relationship between the WISC Verbal IQ and the Stanford Achievement subtests was .39. The range of relationships with the WISC Verbal IQ was .34 to .51 while the range for the Stanford-Binet was .17 to .42. Similarly, the median correlation between the Stanford-Binet and the Iowa Test of Basic Skills subtests was .28 with a range of .20 to .78 while the median for the WISC Verbal was .43 with a range of .27 to .56. Thus, it would appear that the WISC Verbal Scale might provide a more adequate estimate of a child's functioning on an achievement test than the Binet.

Caution should be used when interpreting these findings. Although the WISC may provide the best estimate of present functioning, one crucial problem when evaluating culturally disadvantaged children is to obtain information which identifies talent and predicts functioning after intervention. From this point of view, it would seem more appropriate to use the Binet rather than the WISC when evaluating culturally disadvantaged children of high potential. Support for this belief can be inferred from the findings reported in the Champaign study (Karnes, et. al., 1961) where high achieving children attained high scores on both the Stanford-Binet and the WISC while underachieving children attained high scores on the Binet but lower scores on the WISC. From these findings one could infer that the WISC was more closely related to present functioning while the Binet was apparently related to capacity to engage in the higher mental processes.

The findings with regard to the Performance Scale indicate that there is a significant relationship between the WISC Performance IQ and the Stanford Achievement Subscales. These relationships are very similar to those found between the Stanford Achievement subscales and the Stanford-Binet IQ. When the relationships between the WISC Performance Scale IQ and the Iowa Test of

Basic Skills Subtests are studied, however, it is found that there are significant relationships for all except the Spelling subscale. In this instance, the WISC Performance Scale has slightly lower relationships with the achievement subtests than does the Stanford-Binet Intelligence Scale in all areas except Map Reading and the Use of References. On the latter Scale, the WISC Performance IQ had a slightly higher relationship than did the Stanford-Binet Intelligence Scale. Certainly, these various subtests seem to be getting at different things. It should be noted for example, that the relationship between the Stanford-Binet IQ and the WISC Verbal IQ was .64 while the relationship between the WISC Performance IQ and the Stanford-Binet IQ was .50. Thus it can be seen that the WISC Performance and the Stanford-Binet IQ are most like each other in terms of their relationship to the achievement subtests while the Stanford - Binet IQ and the WISC Verbal IQ as most like each other when compared directly.

To reiterate, the WISC Performance IQ has lower relationships to academic achievement than the Stanford-Binet, except in the areas of Map Reading and the use of Reference. Thus, personnel working in this specialized area will probably want to use the Binet when identifying children for special programs designed to accelerate their rate of achievement. The WISC, on the other hand, might be more useful when the focus is on present functioning.

As might be expected, when the WISC Total IQ score is used, a significant relationship exists between it and all of the Stanford Achievement and Iowa Test of Basic Skills Subtests. Also, correlations between the achievement subtests and the WISC Total IQ is higher than those found between the Stanford-Binet IQ scores and the achievement subtest scores, but lower than the relationships between the WISC Verbal IQ and the achievement subtests. Thus, it would appear, again that the WISC Verbal IQ provides the best estimate of present achievement of children from a population similar to that used in this study. Nevertheless, it should be noted that these children tended to attain higher mean IQ's on the Stanford-Binet than they did on the WISC which suggests that they may have some untapped potential that is being inhibited by certain circumstances within their environment. Provision of appropriate special experiences or programs should enable children who are higher on the Binet and lower on the WISC to improve their academic achievements.

In view of the foregoing, it would appear that there is support for the hypothesized relationships between intelligence and achievement test scores within the subject population of this study. Further, it suggests that the WISC Verbal IQ might be most useful in providing some estimate as to the child's present intellectual functioning, however, the Stanford-Binet would seem to be most useful in providing some measure of potential.

Social and Emotional Adjustment

A fundamental thesis of psychology and education is that the emotional and social adjustment of a child has a bearing on his intellecutal development and the effectiveness with which he is able to utilize endowed potential and learned abilities. Unless certain personality characteristics develop adequately and social concepts and skills are learned and utilized effectively, the chances for a child's success in school is likely to be limited. (Karnes, et. al., 1961) There is, then, an obvious necessity for gaining

some understanding of a child in this frame of reference for the purpose of educational program planning and/or therapeutic intervention consequently a portion of this study was devoted to an investigation of the emotional and social development and characteristics of culturally disadvantaged children.

The world of the culturally disadvantaged is fraught with many problems as evidenced by inadequate, if not deplorable, home and physical conditions, broken families, economic insecurity, and limited occupational opportunities, (Conant, 1961; Goldberg, 1963; Harrington, 1963). Sub-cultural attitudes, values and behaviors are frequently discrepant with and not accepted by society at large. As a result, the disadvantaged are frequently subjected to discriminatory and prejudicial actions. Within this sub-culture there is little preparation either for recognizing the importance of schooling in life or for being able to cope with the kinds of verbal and abstract behavior which the school and the broader society demands. Non-intellecutal survival skills, learned in early home and street experiences, are highly regarded.

Existing descriptions of the world of the disadvantaged are based on the observations of large depressed urban areas. The areas from which the subjects of this study were selected is a smaller depressed urban area commonly found in communities with populations of 75-200,000. Nevertheless, the general characteristics of the subject population are considered to be similar to sub populations from comparably sized communities and to a lesser extent to larger urban areas and to smaller communities with relatively large depressed areas.

According to the phenomological position of Combs and Snygg (1963), behavior and adjustment are determined not by objective facts but by the way the individual perceives, interprets, and understands events in his universe. Evidence from several investigations (Ausubel, 1954; Maas, 1951; Serat and Teevan, 1961) supports the thesis that the individual is affected by the behaviors and attitudes of others only to the extent and in the form in which he perceives them. Thus, on the basis of theoretical formulation and supportive research evidence, an investigation of childrens' perceptions of peers, teachers and parents attitudes was considered to be one way of gaining information relevant to the behavior and adjustment of the subjects in this study.

Perceptions of Peers and Parents

To determine the subjects' perceptions regarding peer acceptance-rejection. fifty questions based on items selected from the California Test of Personality and judged by psychologists as tapping a child's perception of his peers' attitudes were arranged serially in a Perceived Peer Relationship Scale with appropriate modifications and changes to guard against response set. A Perceived Parent Attitude Scale and a Perceived Teacher Attitude Scale were dervied from Ausubel's Parent Attitude Scale (Ausubel, 1954). On the Parent and Teacher scales, scores were obtained on the acceptance-rejection and intrinsic-extrinsic valuation dimensions as well as a total score derived from these two dimensions.

Since children of lower socio-economic status are frequently subjected to negative attitudes and behavior from others in the community and perceive themselves as less adequate in comparison to those of a higher socio-economic status (Ausubel, 1963; Clark, 1963; Deutsch, 1963), it was hypothesized that the lower the socio-economic status the more the children would perceive themselves as less accepted by peers. A significant relationship in the expected direction was found between socio-economic status and perceived peer attitudes. Thus, the children in this study who were of U-L socio-economic status tended to perceive themselves as better accepted than did children of L-L socio-economic status. Since children of lower socio-economic status are often subjected to discriminatory practices, the self reports that others are negative toward them may be quite realistic. On the other hand, these reported perceptions may reflect a distorted picture of reality as evidenced in the attitudes and behavior of others. In either event, the perceptions of others as negative or non-accepting would appear to have a detrimental effect on a child's functioning. In this study children of U-L socio-economic status tended to perceive peer attitudes as being more positive than did children of L-L socio-economic status. It is possible that the attitudes, values, and behavior of individuals from the U-L socio-economic status are not as discrepant from the middle class culture as are those of L-L socio-economic status. Therefore, children of the U-L socio-economic group may not be subjected to as much discriminatory and prejudical actions and the attitudes of others toward these children would be "realistically" more positive and under these circumstances, distortions of reality or misperceptions of the attitudes of others may be less likely to develop.

Parental values and attitudes regarding child-rearing and parent-child relationships are known to differ appreciably from one socio-economic class to another (Duvall, 1946; Kohn, 1963). Duvall (1946) points out that lower class parents want their children to be neat and clean, and to obey, respect, and please adults. From these examples, it would appear that lower class parents set rather concrete, externally observable standards for their children. On the other hand, middle class parents not only want their children to be socially acceptable (neat and clean) from an external point of view, but also are concerned with internalized feelings of well being and desire to achieve. On this basis, it was hypothesized that the children of the U-L socio-economic group would perceive parents as more accepting and positive valuing than children of the LL socio-economic group. While a relationship was found between perceived parent acceptance and the total score of the Perceived Parent Attitude Scale and socio-economic level, it was thought that confounding by race may have contributed to this finding. When the effect of race was controlled through partial correlation, the relationships did not approach significance. Thus, the hypothesis was not confirmed.

The longer a child lives in a deprived environment and is subjected to the adverse attitudes of others, the more suspicious and defensive he might be expected to become. From this, it was anticipated that the older the child the more he would feel that others (peers, parents and teachers) are more rejecting and antagonistic toward him. Although it was hypothesized that older children would perceive their peers as less accepting, this hypothesis was not confirmed.

In striking contrast to the above hypothesis, older children perceived their parents and teachers as more accepting and parents as more intrinsically

valuing than did younger children. Since these children are the most intellectually capable group among this culturally disadvantaged population, they may be more effective in adjusting to problems and conditions associated with deprivation and, thus, have maintained a relatively more positive outlook in terms of perceiving the environment as less threatening and other people as more accepting. At the same time, these "brighter" children may come from homes within the low socio-economic level where substantially more advantages are provided and child-rearing practices are more effective in the development of a positive adjustment than would be found in other homes of equally low socio-economic status where the psychological climate is less conducive to growth.

While the results indicate that older children perceive themselves as better accepted than do younger children, the possibility must be considered that the older children in this study were able to "see through" the intent of the items in the scales and attempted to respond in accordance with perceived social expectations. Nevertheless, in order to respond in this way, some awareness of "expected" attitudes and values would be essential. Possibly these attitudes and values are not as alien to the children in this study as the literature suggests or possibly these children have acquired an understanding of and developed a sensitivity for a system of values other than their own through contact with various persons or groups. In the latter case, the school culture including the social class orientation conveyed by the teacher is very likely the most influential. While these attitudes and values may not be fully integrated and internalized to the extent that the child's entire life is permeated, bright disadvantaged children might be expected to learn to behave (or respond) appropriately within such a framework.

There is evidence (Lucito, 1959) to suggest that younger children are less sensitive to social relationships than older children. On the other hand, older children are considered to be more inhibited in expressing their feelings than younger children. Consequently, older childrens' reports of perceived peer, teacher and parents acceptance may not represent "true" perceptions but only those considered to be socially acceptable by the respondent. If so, these children would appear to be aware of appropriate social attitudes yet not always reflect the attitudes in their behavior.

As hypothesized, Negro children in this study tended to perceive their peers and parents as less accepting than did their white counterparts. There is considerable evidence (Conant, 1961; Dai, 1949; Hill, 1957) to suggest that physical-environmental and socio-psychological conditions are more adverse for Negroes than for whites of similar socio-economic status. These conditions may account for their less positive perceptions. Clark (1955) and Jefferson (1957) propose that because of prejudical and discriminatory attitudes and behavior of others, a Negro child is often confused in regard to his feelings about himself and his group and often tends to evaluate himself according to the standards of "inferiority" used by other groups. Self-hatred and rejection of his group, hostility toward other groups and a generalized pattern of personality difficulties tend to evolve from these mixed feelings. Thus, being Negro has implications for ego development not inherent in all lower class membership (Ausubel, 1963). With hatred or negative feelings toward himself, his group and other groups, the Negro child might well be limited in his opportunity to establish identity, develop a stable value system and

formulate goals. Under these circumstances, a child's motivation for school, and thus his achievement, could be markedly affected.

Since there is some support (Gallagher, 1964; Terman and Oden, 1951) for the belief that children of higher intellecutal abilities tend to be better adjusted and get along better with others, it was believed that there would be a positive relationship between intelligence and perceived peer and parent attitudes. The results tend to confirm this expectation in that a significant relationship was found between intelligence and perceived peer acceptance and perceived parental acceptance. Since the scale measuring intrinsic-extrinsic valuation is related only to the WISC Verbal IQ and not to the Stanford Binet IQ, WISC Performance IQ or WISC Total IQ, the findings did not support the hypothesized relationship between intelligence and parental intrinsic-extrinsic valuation.

The social and emotional adjustment of a child is considered to be of utmost importance in school achievement. Since adjustment is assumed to be reflected in the reported perceptions of attitudes of others, a positive relationship between perceived attitudes of peers and achievement was expected. Only minimal support for this expectation was found since only two out of the six correlations with the Stanford-Achievement subscores and only five correlations with the eleven Iowa Test of Basic Skills subscores were significantly related to peer perception.

Karnes et al. (1961) argue that parental attitudes of acceptance and intrinsic valuation contribute to academic success by encouraging the development of greater feelings of worth and a more realistic sense of personal adequacy. Thus, the child who perceives himself as accepted and intrinsically valued by his parents is likely to be more confident of his ability to cope with school tasks and should be a higher achiever than a child who feels unaccepted and extrinsically valued. There is strong support for this belief in that 15 out of 18 possible relationships between perceived parent attitudes scores and Stanford Achievement sub-scores and 30 out of a possible 33 relationships between perceived parent attitude scores and Iowa Test of Basic Skills subscores were significant.

A major factor influencing the child's adjustment and achievement in school is the perceived teacher attitude. Davidson and Lang (1960) found that children who perceived their teacher's attitudes to be negative had lower opinions of themselves, achieved less well, and behaved worse than their classmates who perceived themselves as more favored. Clark (1963) reports evidence that an overwhelming majority of teachers and their supervisors rejected culturally disadvantaged children and tended to perceive them as inherently inferior and incapable of learning. Davidson and Lang (1960) found that teachers tend to rate "undesirable" the classroom behavior of lower class children even their achievements were good. Furthermore, children of lower socio-economic levels tend to be ill-prepared for schools oriented toward "middle class" values, standards and goals (Allison, 1964; Clark, 1963; Deutsch, 1963; Riessman, 1962). There is good reason to believe that the lower a child's socio-economic status the more limited is his preparation for school and the fewer are his opportunities for success. A child whose experience in school has been predominately negative might be expected to perceive the situation negatively and perceive the teacher as less accepting. On this

permise, it was hypothesized that children of U-L socio-economic status would regard themselves as more favorably perceived by teachers than children of L-L socio-economic status. The findings, however, do not support the hypothesis in that there was no significant relationship between socio-economic status and perceived teacher acceptance or intrinsic valuation.

It was believed that the daily difficulties experienced by lower socio-economic children in schools would be reflected in increased feelings of rejection and extrinsic valuation in older children. The findings indicate no relationship between chronological age and perceived teacher intrinsic valuation. In contrast to the hypothesis, older children tended to perceive teachers as more accepting than younger children. Although there may be many reasons for this finding, one possibility which certainly warrants further study, is that the children's reports do reflect reality, in that teachers are relatively more accepting than other adults in the child's environment.

For a variety of reasons, it was hypothesized that there would be a relationship between perceived teacher acceptance and intrinsic valuation and sex, race, and intellectual ability. Contrary to expectations, no significant relationships were found between sex, race, or intelligence within the limited range of subjects in this study and perceived teacher acceptance or intrinsic valuation.

Since good adjustment is believed to be related to high achievement and positive perceptions of others, it was hypothesized that those children who were high in achievement would perceive teachers as more accepting than low achievers. No relationship was found between teacher acceptance, intrinsic valuation, or the total of these two scales and achievement as measured by the Stanford Achievement Test, with the exception of Language and perceived teacher total. On the other hand, eight of the possible eleven relationships between perceived teacher total scores and the Iowa Test of Basic Skills subtests scores were significant. There were no significant relationships between perceived teacher acceptance or intrinsic valuation scores and the Iowa Test of Basic Skills on sub-test scores. One possible explanation for these differential findings is that the Stanford Achievement Test was administered by a school staff member who was unknown to the pupils while the Iowa Test of Basic Skills was given by the classroom teacher. Thus, it is possible that the performance of these children was influenced to some degree by the quality of the relationships of the subjects to the persons administering the test. Perhaps those children who perceive themselves as accepted by the teacher will perform better for the teacher when taking tests administered by the teacher than for some other person with whom they are unfamiliar. Similarly, those children who perceive themselves as not accepted by the teacher may not perform as well for the teacher as for someone else whom they perceive as accepting.

Evaluation of the findings regarding the perceptions of teachers suggests that culturally disadvantaged children of higher potential, at least in this study, are not alienated by the elementary school personnel as the literature might suggest. No findings are available, however, with regard to junior and senior high school students. One possible explanation is that these children are

"brighter" than most children of the culturally disadvantaged population and may be able to obtain greater acceptance from teachers. On the other hand, teachers of the classes from which the children of this study were selected may have had at least some awareness of the problem of inducting disadvanted children in to a school culture oriented toward middle class values and, thus, were able to act in such a way so as not to frustrate and alienate them completely. Another possibility is that since these children are intellectually more capable, they are able to learn the values and attitudes necessary for successful adjustment and functioning within the classroom but maintain different sub-cultural attitudes and values in the home and community. If the child is able to learn how to behave according to the expectations of school personnel, then he will be placed in a more favorable position in the school setting and able to win greater acceptance. Since the reasons for this finding is not clear, clarification will be necessary through further research.

Attitudes of Parents

One of the concerns of this investigation was to determine the relationships between the attitudes of parents and the functioning of children considered in this study. The Parent Attitude Research Instrument was used to evaluate parents attitudes toward child rearing practices. This scale assesses the parents Approval of Maternal Control of the Child and Approval of Material Expression of Hostility. Although the scale originally used the above labels, they are usually more briefly referred to as the Authoritarian-Controlling and the Hostile-Rejecting factors. A third factor, which seems to be a less meaningful scale but one that helps gain rapport with parents, is the Democratic scale. One of the problems faced in the analysis of the data was that race was frequently confounded with socio-economic level even though the subjects were all from lower socio-economic homes. Consequently, the effects of race on the findings are considered along with the effects of socio-economic level when appropriate.

Previous studies of the attitudes of parents toward child rearing practices using the PARI and other techniques conducted by such researchers as Zuckerman, Barrett, and Braghill (1960); Sear, Macoby, and Levin (1957); Bayley and Schaefer (1958), have found a relationship between lower socio-economic status and authoritarian and controlling attitudes. The present findings indicate that there is apparently a significant relationship (.42) between lower socio-economic status and the authoritarian attitudes of mothers within the subject population. The findings, however, also indicate a significant relationship between the Authoritarian-Controlling scale and race such that Negro mothers express more authoritarian attitudes than Caucasian mothers. If the relationship between race and the socio-economic status is controlled statistically, then the relationship between the socio-economic status and Authoritarian-Controlling attitudes is not significant. Differences between the findings of this study and the Bayley, et al (1958), and Zuckerman, et.al.(1960) studies may be attributed to the fact that they used subjects from a wide range of socio-economic levels while the subjects in this study were all from the lower socio-economic level. Thus the findings of this study do not support the hypothesis that there is a relationship between SES and authoritarian and controlling attitudes.

It was hypothesized that there would be a significant relationship between socio-economic status and Hostile-Rejecting attitudes of parents. The finding of this study do indicate that there is a significant relationship (.27) between socio-economic level and the Hostile-Rejecting attitudes of the mothers but not with the Hostile-Rejecting attitudes of fathers. Although the relationship (.24) between race and Hostile-Rejecting attitudes of mothers is not statistically significant, the trend in this direction suggests that the relationship between race and socio-economic status should be controlled statistically before fully accepting this hypothesis. When a partial correlation is used to control the effects of race, the resulting correlation (.16) is not statistically significant. Therefore, the hypothesis of the relationship between Hostile-Rejecting attitudes and socio-economic status is confounded and this hypothesis cannot be accepted without reservation.

It was hypothesized that Caucasian parents would manifest significantly fewer Authoritarian-Controlling attitudes than Negro parents. As previously reported, there was a significant relationship between race and the Authoritarian-Controlling attitudes of mothers even though there was some confounding of socio-economic status. The findings further indicate that Negro fathers regardless of socio-economic level manifest significantly more Authoritarian-Controlling attitudes than do Caucasian fathers. Since there was no relationship between fathers' authoritarian attitudes and socio-economic status, the findings support the hypothesis that Caucasian fathers have more positive child rearing attitudes than do Negro fathers but the findings fail to support the hypothesis that the lower the socio-economic status the more authoritarian the fathers' attitudes.

Since it was believed that democratic attitudes were positive in direction and thus more likely to be manifested in upper socio-economic homes, it was hypothesized that there would be a positive relationship between democratic attitudes and socio-economic status. No relationship, however, between socio-economic status and Democratic attitudes of either mothers or fathers was found, hence, this hypothesis was rejected.

In summary, mothers of the lower socio-economic subjects of this study are more autheritarian and hostile rejecting than mothers of somewhat higher, but still of low socio-economic status, although much of this effect is attributable to the high percentage of Negroes at the lower end of the socio-economic scale. No relationships were found between the fathers' attitudes and socio-economic status or between democratic attitudes held by mothers and socio-economic status. Negro fathers expressed more authoritarian attitudes than did Caucasian fathers, but were not more Hostile-Rejecting.

It was hypothesized that the achievement of the subject would be associated with positive parental attitudes. Significant relationships in the hypothesized direction were found between authoritarian attitudes and Word Meaning, Paragraph Meaning and Arithmetic Concepts subtests of the Stanford Achievement Test, as well as with the Punctuation, Map Reading and Reading Paragraphs subtests of the Iowa Tests of Basic Skills. These findings are somewhat paradoxical in that expressed parent attitudes apparently had differential effects on the children's performance on the achievement subtests of the two measures of achievements. Some of the differences may be attributed to population

differences in that the Stanford Achievement Tests were administered by psychologists to the children in grades 2-6 while the ITBS were administered by teachers only to the children in grades 3-6. In view of the high correlations between the Stanford and the ITBS scores when they are administered to the same children, it would appear that the differences could be attributed to the effect produced by the presence or absence of the second grade children in the sample. Thus, it well may be that authoritative attitudes of the mothers have the greatest detrimental effect on younger children in those areas where a child might be expected to progress on his own such as in reading. As he gets older, possibly, parental attitudes have less impact on him while teachers and the curriculum have greater influence. This post hoc hypothesis, of course, needs to be further evaluated.

In view of the foregoing, it would appear that there is some support for the belief that there is a relationship between the authoritarian atttitudes as held by the mother and retarded achievement. The findings, however, are neither clear cut nor fully supported. There is no support for the hypothesis that mothers' reports of Hostile-Rejecting or Democratic attitudes, as sampled by the scale, foster achievement in the children. In addition, there is no support for the hypothesis that the attitudes of the father are related to achievement. The small N or the minor role played by fathers in this type of home may have contributed to this finding.

The findings of this study do not agree with those of Holland and Ostin (1962). Their findings suggested that exceptional academic performance occurred more frequently in children of parents who had somewhat authoritarian attitudes (PARI). These contrast with the findings of the present study which indicate that authoritarian attitudes inhibit rather than encourage achievement. One post hoc rationale for this difference which received some support from Durral (1946), may be that the more middle class parent expresses his authority by directing the child to achieve in academic areas while the lower class may be more concerned with directing the child to conform in non-achievement oriented areas.

Parents with positive attitudes were hypothesized as providing expreiences in the home which would foster creativity in their children. Only one, probably chance, relationship was found between the PARI scores and the Creativity scores. The findings of this study provide no support for the belief that the attitudes of the parents as measured by the PARI are related to the creativity of children. These findings contrast somewhat with those reported by Holland and Ostin (1962) wherein Originality scales and Barron's Originality, Complexity-Simplicity and Independence of Judgment scales were negatively correlated with the Authoritarian-Controlling scale of the PARI. Again, the homogeniety of this population may have contributed to the finding. It was hypothesized that the children whose parents' manifest more positive child rearing practices will perceive themselves as better accepted as peers. Only one of the relationships between parents' attitudes (Fathers' Hostile-Rejecting) and perceived peer acceptance was significant. This finding might be due to chance, however, it is consistent with the findings of Marshall (1961) who examined the relationships of certain of the PARI scores to peer acceptance as determined by sociometric procedure. Suppression, demands for striving and Harsh Punitive Control (Hostility-

Rejection) in the fathers were all positively associated with peer acceptance for boys and negatively associated with peer acceptance for girls. He also found that fathers' Harsh-Punitive Control related to three measures of hostility in boys and one in girls.

In the present study, Hostile-Rejecting attitudes on the part of the father was found to be related to perceived peer rejection. Determination of the relationship between the sex of the child and the Hostile-Rejecting attitude on the part of the fathers was not considered to be feasible because of the small N (= 25). (The proportion of boys to girls in the sample was approximately equal.) Since there is a significant relationship between the fathers' Hostile-Rejection attitudes in the combined boy-girl sample, it would appear that within this population fathers' attitude have a detrimental effect on perceived peer acceptance. Furhter study needs to be made of any differential effects that might accrue relating to the sex of the child versus the sex of the parent manifesting the hostile behavior. In summary, support is provided for the hypothesis that there is a relationship between Hostile-Rejecting attitudes on the part of the father and perceived peer rejection, but no support for the hypothesis that there is a relationship between other measured parental attitudes and perceived peer relationships.

It was hypothesized that children of parents whose child rearing attitudes were positive would perceive their parents as being accepting and intrinsically valuing of them. Since no significant relationships were found between parents' attitudes and the children's perceptions of the parents attitudes, this finding could not be supported.

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It was also hypothesized that children of parents whose child rearing attitudes were positive would perceive their teachers as being accepting and intrinsically valuing of them. Only one of the twelve possible relationships was significant. Although this may be a chance finding, there is still a good possibility that hostile attitudes expressed by fathers may be related to the child's perception that the teacher does not intrinsically value the child. Therefore, there is only partial support for the preceding hypothesis.

It was hypothesized that the children of parents whose attitudes with respect to child rearing were less positive would tend to project blame for frustration to the outside environment, tend to gloss over or deny frustration and to internalize less of the blame for frustration than comparable children. The findings of this study are differential in nature. The children of mothers who manifested hostile rejecting attitudes tended to project blame for frustration on the outside environment, to be more ego defensive, to be less intro punitive (did not internalize blame for frustration) and to be less need persistive. In addition, Hostile-Rejecting attitudes as expressed by fathers were related to increased ego defensive responses and decreased obstacle dominance on the part of children. These findings support the hypothesis

that the hostile rejecting behavior manifested by parents is definitely related to the defensive behavior of the children. On the other hand, there is no relationship between the Authoritarian-Controlling attitudes of parents or the Democratic attitudes held by parents and the methods the child uses to cope with frustration. In summary, there is differential support for the belief that the attitudes of the parents are related to the children's methods of hanlling frustration. These findings point up the fact that Hostile-Rejecting attitudes on the part of the parents are more damaging to the emotional development of the child than are controlling attitudes.

Reaction To Frustration

Frustration, according to Rosenzweig (1944) takes place . . . "whenever the organism meets a more or less insurmountable obstacle or obstruction in its route to the satisfaction of any vital need." Rosenzweig further holds that reactions to most or all frustrations are aggressive in character and can be classified both by "direction" and "type". Direction of responses to frustration are classified according to how the individual who has been frustrated responds to the frustrating situation -- (1) aggression may be directed outward to the environment (Extrapunitive response); (2) aggressive feelings may be turned inward by the frustrated person (Intropunitive response); or (3) the person may attempt to gloss over the problem encountered or minimize the importance of the frustration (Impunitive response).

Type of response is considered to reflect the individuals' reaction to frustration as well as his perception of the frustrating instance. Rosenzweig uses the following "type" categories: (1) the Need Persistence response which involves expression of a need to continue toward a goal, (2) Ego-Defense response which is one which the individual reacts to the source of frustration as if it were attacking the self-structure of the subject; (3) the Obstacle-Dominate response which involves an expressed awareness by the individual that he is frustrated and that he is "blocked" by the frustration. With the latter type, the individual neither defends his ego nor pursues the original goal.

Conformity of Response

Frustration tolerance is seen by Rosenzweig (1944) as, "the capacity of the individual to withstand frustration without resorting to inadequate modes of response." An adequate response is considered a response appropriate to the situation. The Group Conformity Rating (GCR) of the Children's Form of the Rosenzweig Picture Frustration Study yields a score which indicates the amount of agreement of a subjects' response to given situations with those of a "normal" group of peers. If one can assume the most frequent or "normal" response to a given situation is likely to be an appropriate response, then it would follow that significant positive relationships would exist between G.C.R. scores and the variables under study which are associated with school success.

Significant relationships ($P < .05$) were found between the G.C.R. score of the Rosenzweig Picture Frustration Study (P.F.) and both chronological age (C.A.) and mental age (M.A.). Since mental age and chronological age are

highly related (r .92) and since there was no significant relationship found between G.C.R. and Stanford-Binet IQ, the findings suggest that, for the group under study, conformity with respect to meeting frustrations in an average manner is related to factors associated with general maturation as measured by mental age and chronological age, rather than factors associated with rate of intellectual growth as measured by the intelligence quotient derived from the Stanford-Binet. It should be noted, however, that the IQ range of the group included in this study is restricted. The above findings therefore, do not suggest the possibility of a relationship between G.C.R. scores and intelligence test scores within the general population. For example, one might find significant relationships between G.C.R. and IQ if the children being evaluated included those who scored unusually low on intelligence tests.

Although significant relationships were found between G.C.R. and WISC Verbal IQ and G.C.R. and WISC Full Scale IQ, it should be noted that relatively higher correlations were found between the above variables and chronological age than between the above WISC scores and G.C.R. The results of a partial correlation hold the effects of C.A. constant "washed out" the relationship between G.C.R. and both WISC Verbal and WISC Full Scale scores. These findings, then, lend support to the post hoc belief that G.C.R. scores are, for the students included in this study, a function of general maturation as reflected by C.A. rather than directly realted to measure of general intelligence per se. The findings, therefore, do not support the hypothesis that culturally disadvantaged children of higher potential who react to frustration in a conventional fashion will have higher intelligence quotients than their cultural peers.

It was reasoned that the behavior of children who respond to frustration in a conventional manner would be more acceptable to others than that of children who respond in an unconventional fashion. It would follow, therefore, that children whose behavior is acceptable to others would feel accepted by them. Following the above line of reasoning, it was expected that children who receive higher scores on the G.C.R. Sacle would perceive themselves as better accepted by parents, teachers and peers. A persual of the correlational matrices reveals significant relationships between the subjects scores on the G.C.R. Scale and perceived peer relationships, perceived parent relationships, and perceived teacher relationships, thus, lending support to the hypothesis that the children included in this study who react to frustration in a more conventional fashion do perceive themselves as better accepted by peers, parents and teachers.

In the areas tapped by the "Creativity" Test, significant relationships were found between G.C.R. scores and Originality and Flexibility. (r = .17 and .18, respectively). It must be recalled, however, that G.C.R. appears to be largely a function of chronological age. Furthermore, an inspection of Table XXII b reveals stronger relationships between Originality and Flexibility and C.A. than between the Creativity variables and G.C.R. A partial correlation parceling out the effects of chronological age reduced the relationship between G.C.R. and Originality and Flexibility Scores below the level of significance. Thus, the most parsimoniously explained in terms of chronological age. For the total sample, then, the ability to deal with Creativity

Test items in ways scored as "Original" and "Flexible" is largely dependent upon the subject's maturation as expressed by C.A. The above findings, therefore, do not support the hypothesis that culturally disadvantaged children of higher potential who react to frustration in a more conventional fashion will be more creative than others of similar socio-economic background.

Contrary to expectations, no significant relationships were found between G.C.R. and parental attitudes toward child rearing practices, achievement, race, or socio-economic status. These findings suggest that these factors are not associated with the development of "average type" reactions to frustration.

In summary, on the basis of the above data, it appears that, the Rosenweig G.C.R. Scale can be used to gain insight into the students self-concept because those who attain relatively high G.C.R. Ratings tend to perceive themselves as better accepted by significant others. For the other variables under consideration, however, high G.C.R. Ratings seem more dependent on the age of the subject than the particular attributes under study. If one assumes that normal or usual responses to frustration are earned through the course of daily experiences and interactions, the findings indicating G.C.R. as associated closely with chronological age are not surprising.

Extrapunitive

It was hypothesized that children who, according to the Rosenzweig Protocol, tend to project blame for frustration to other persons or things in their environment would, as a group, show up less favorably than their peers on certain of the characteristics analyzed in this study. The general tendency to project blame to the outside environment is measured by the extrapunitive (E) Scale of the Rosenzweig Picture Frustration Study. The abo e method of dealing with frustrating situations is largely negative in character and offers little by way of finding a constructive solution with respect to removing or overcoming the obstacle that blocks the path to the original need satisfaction or overcoming the obstacle that blocks the path to the original need satisfaction. It would seem to follow, then, that those who are inclined to respond to frustration in an extrapunitive manner, will have more difficulty in effecting a successful solution to the goal Although the extrapunitive individual may, at times, find his method of dealing with frustrations satisfying to the self through the reduction of internal tension by blaming others, aggressive denial of responsibility, placing the onus for blame on the situation itself, or perceiving the situation as one which will be resolved by others; his reaction does not seem one which would be productive in terms of actual solution of the problem itself.

An examination of the correlational matrics reveals no significant relationships between E and any of the total or sub scores of the intelligence measures. It would, therefore, appear that the tendency toward extrapunitiveness as measured by the Rosenzweig Picture Frustration Study is not associated with the intelligence of the subjects of this investigation. The above findings are contrary to the hypothesis that those children who tend to project blame for frustration to the outside environment would earn lower scores on the intelligence tests. Again, the restricted IQ range of the subjects of

this study must be taken into consideration. It is entirely possible that had all school age children been included in this study, significant relationships between E and IQ would exist with those of lower mental maturity evidencing a higher preponderance of the E responses than those who score higher on tests of general intelligence.

In the achievement area, significant correlations were found between E and Paragraph Meaning and Arithmetic Computation on the Stanford-Achievement Test which indicates that extrapunitive subjects are less productive in the major tool subject areas. Since the ability to gain meaning from reading materials and produce accurate responses in arithmatic is highly important for school success, it seems probable that the extrapunitive subjects may evidence more difficulty in handling the academic aspects of the school curriculum than will others of their peer group who respond to frustration in a more positive way.

It should be noted that, of all the variables listed on the Matrices, E is most strongly related to chronological age. It can be seen that the relationship is such that the younger the child, the more extrapunitive he is likely to be when confronted with frustrating situations. Again, if one assumes that extrapunitive responses to frustration are, from the standpoint of society, not acceptable responses, and that learning to inhibit extrapunitive responses to frustration and replace these responses with others in part of the "socialization process" of "growing up", then the above results would be expected.

A further examination of the correlational matrics reveals a significant relationship between high scores of the E Scale of the Rosenzweig Picture Frustration Study and lower socio-economic status. Since there is no significant relationship between chronological age and socio-economic status, it can be assumed that the relationship between E and socio-economic status exists independently of chronological age. The findings support the hypothesis that children in our sample who tend to project blame for frustration to the outside environment will be of lower - lower socio-economic status. This finding supports previous results obtained by McKee and Leader (1955) who report aggressive behavior as being more common among lower class children than children of higher socio-economic status; Stoltz and Marshall (1959) who found that lower class children according to Rosenzweig protocols, tend to project blame and hostility for frustration to forces outside of themselves in both adult-child and child-child relationships; and Battle and Rotter (1963) who found that lower class children tend to attribute responsibility for happenings to factors outside themselves while middle class children tend to accept personal responsibility for happenings and events.

It was postulated that children who were identified as extrapunitive in their response to frustration would also perceive themselves as less well accepted by peers, parents, and teachers than those children who react to frustration in some other fashion. The above hypothesis was based on the assumption that children who tend to project blame for frustration to others are likely, in turn, to be rejected by others who resent being blamed. Although the relationship between extrapunitiveness and peer, parent, and teacher acceptance are all negative in direction, a perusal of the correlational matrices reveals significant negative relationships between

extrapunitiveness and Perceived Peer Acceptance and Perceived Parent Intrinsic Valuation. These findings suggest that extrapunitive children may, in fact, perceive themselves as less well accepted by peers and less intrinsically valued by parents. It will be recalled that a significant relationship also exists between extrapunitiveness and chronological age such that the younger the child the more likely he is to respond to frustration in an extrapunitive fashion. A partial correlation holding the effects of chronological age constantly eliminates the finding of a significant relationship between extrapunitiveness and Perceived Peer Acceptance and Perceived Intrinsic Parental Valuation. It would, therefore, seem that the relationship of extrapunitiveness to the perceived peer acceptance and perceived intrinsic valuation variables is a function of chronological age. Of course the findings are psychologically significant to the extent that decreased extrapunitivenss, and improved perception of peer and parents is associated with the growth in maturity reflected by increase in chronological age.

Another hypothesis, however, may be advanced. This post hoc hypothesis is that younger children are more open and less defensive in their responses to questionnaires than are older children. If this is the case, then, it may be that, in actuality, the extrapunitive subjects are less well accepted by peers and less intrinsically valued by parents or their is no significant relationships between extrapunitivenss and the latter variables.

The hypothesis stated that culturally deprived children of higher potential who attain high scores on the Rosenzweig E Scale would come from homes whose parental attitudes regarding child-rearing practices as measured by the PARI, are not positive. It was reasoned that a child who found himself the target of an inordinate amount of parental censure, anger, or rejection would, in an attempt to defend his self-concept, tend to project blame for frustration to sources outside himself. The findings reported in Table XXXXII indicates a significant relationship between E and Hostile-Rejecting attitudes on the part of the mother. No significant relationships were found between Extrapunitiveness and other PARI scales. Since only mothers' Hostile Rejecting attitudes are associated with the development of extrapunitive methods of handling frustration on the part of the child, there is but partial support for this hypothesis. No significant relationships were found between extrapunitiveness and the perceived teacher acceptance scale. This finding is quite interesting as it suggests that those children who are inclined toward extrapunitiveness do not perceive their teachers as particularly rejecting, although they see themselves as less well accepted by peers and less intrinsically valued by parents.

The findings provide no support for the hypothesis that the extrapunitive children would be of Negro racial origin. For the culturally disadvantaged children of high potential in this study, therefore, the tendency to deal with frustration by projecting the blame to persons or events in the environment is independent of race.

The summary of the findings relating to the extrapunitive child suggests that, for the population studied, extrapunitiveness is largely independent of intelligence test scores, perceived teacher acceptance, and race. The younger

the child, the more likely he is to react to frustration in an extrapunitive manner. The younger extrapunitive child perceives himself as less well accepted by his peers and is less accepted and intrinsically valued by his parents. In the achievement area, the extrapunitive subjects were found to be less productive than most in the major tool subject skills of arithmetic computation and paragraph meaning. Children who manifest extrapunitive responses to frustration are likely to be of lower-lower socio-economic status and come from homes where the mother is hostile-rejecting in her attitudes regarding child-rearing.

Impunitive

Children who gloss over or deny frustration as were believed to be less able to interact successfully with certain aspects of their daily life than other children since such behavior implies little by way of positive action to cope with the frustrating instance. This condition would appear to be most significant in the extreme instance where the individual constantly "glosses over" his problems. On the other hand, the children in this study were expected to have some, but not outstanding difficulties in adjustment. Since more ability to gloss over a frustrating experience is needed to cope with the realities of life, it was felt that the relatively high, but not excessive M scores might be related to more positive functioning. High scores on the Impunitive Scale (M) of the Rosenzweig Picture Frustration Study were considered to reflect this behavior. Pupils who score higher than others on the M Scale are inclined to handle frustration by denial of the existence of the frustrating obstacle, regarding as unavoidable the frustrating situation, or hoping that the situation will resolve itself through time or as a matter of natural events (Rosenzweig, 1948).

It was hypothesized that culturally deprived children of high potential who tend to gloss over or deny frustration would attain lower scores on the intelligence tests than the other subjects of this investigation. It was reasoned that the Impunitive child would be less aware of the small happening in his life especially ones that would be threatening, and thus, be less able to make the fine discrimination that would enable him to make higher scores on intelligence tests.

An examination of the correlational matrices reveals no significant relationships between M and the total scores or the subscale scores of the intelligence measures. These findings are contrary to the hypothesis and indicate that for the population included in this study a tendency toward Impunitiveness as measured by the Rosenzweig Picture Frustration Study is not associated with intelligence. Since the ability range of the pupils comprising the population of this study is quite restricted, the obtained results are, of course, not applicable to the general population. Were all school aged children included in this study, differentiation between the intelligence test performance of the Impunitive children from their peers may have been discovered. In spite of the restricted range these findings are congruent with reports of other researchers, (Levitt and Lyle, 1955).

Following the same line of reasoning on which the above hypothesis was based, it was expected that the Impunitive children in this study would also score lower on the achievement tests and tests designed to tap creativity factors.

The correlations reported on the matrices, when the effects of chronologcal age are held constant, do not support the expectations. The tendency to meet frustration through glossing over or denying its presence, then, is not associated with academic achievement insofar as the population of this study is concerned. On the other hand, when the effects of chronological age are held constant by partial correlation, significant relationships exist between M and three of the creativity measures (Fluency, Originality and Flexibity). It will be recalled that, of those Rosenzweig factors measuring "direction" of aggression, M is the only variable related to creativity. On the basis of the data collected, therefore, the following post hoc hypothesis is suggested. It is possible that those children whose personality is such that they are able to gloss over or deny frustrations are better able to tolerate the situation of "psychological estrangement" from parents, teachers, and peers mentioned by Torrence than are those individuals whose reactions to frustration is either Extrapunitive or Intropunitive in nature. It will be revealed that the creativity variables were not related to either the Rosenzweig E and I factors, thus the creativity scores are significantly related only to M.

Although the relationship between the Impunitiveness scores on the Rosenzweig Picture Frustration Study and the Perceived Parent Intrinsic Valuation scale reaches significance, a relationship also exists between chronological age and Perceived Parent Intrinsic Valuation. When the effects of chronological age are parceled out by partial correlation, the obtaining correlation between Impunitiveness and Perceived Parent Intrinsic Valuation no longer is statistically significant. It would seem, therefore, that growth and maturation as reflected by chronological age results in the Impunitive child's perceiving his parents as increasingly valuing him for his intrinsic worth.

It was hypothesized that culturally disadvantaged children of higher potential who tend to gloss over or deny frustration would be of lower socio-economic status. It was the author's belief that children at the bottom of the socio-economic ladder would find their life situation so intolerable that they would find it difficult to "face up" to the frustrations and demands inherent in daily existence. Their responses to frustration, then, would be that of denial of the problem or glossing over the need. Although confounded by race, the correlation reported on the matrices is such that Impunitiveness is associated with higher socio-economic status.

A post hoc hypothesis regarding the relationship between Impunitivenss and a tendency towards upper-lower socio-economic status is that the M Scale may, with these subjects, reflect conformity related to the middle-class values and standards. The findings of Stoltz and Smith (1959) lend support to the above post hoc hypothesis. In a study utilizing the Rosenweig Picture Frustration Study they found that upper class children, as opposed to their lower class group, manifested more expression that time or normally expected solutions would bring about a solution to the problem. In child-child situations, patience and conformity responses were more characteristic of the upper class children. A tendency toward Impunitiveness, particularly in situations of an inter-personal nature them may reflect repression of overt aggressive tendencies in keeping with middle-class standards. Since there is a relationship between Impunitiveness and upper-lower socio-economic status, it may be that the impuntive children

come from upward mobile families who have identified, in terms of direction of behavior towards frustration, with the standards of the higher class level to which they may aspire. As an alternative explanation, it may be that upward mobile families perceive fewer blocks to their mobility, thus, "gloss over" on feelings of frustration.

The hypothesis stated that culturally disadvantaged children of high potential who tend to gloss over or deny frustrations will have parents whose attitudes towards child-rearing are less positive. It can be seen on Table XXXXII that a low significance but negative relationships between M and child-rearing attitudes as reflected by PARI scores exists only on the mother hostile-rejecting scale. Thus, contrary to expectations, the obtained relationship is such that mothers of Impunitive children are less likely to hold hostile and rejecting child-rearing attitudes. On the basis of the findings, therefore, the above hypothesis must be rejected. These findings can be interperted as providing support for the previous post hoc hypothesis is that children who score higher than most on the M scale may view life in a more positive manner the children who are less Impunitive.

As discussed earlier in this section, children who react to frustration in an Impunitive fashion tend to come from upper-lower socio-economic backgrounds and Extrapunitive children tend to come from lower-lower socio-economic backgrounds. Mothers of Extrapunitive children tend to be hostile and rejecting in their child-rearing attitudes while the child-rearing attitudes of the mothers of Impunitive children show relationships in an opposite dire direction. These findings add general support to previous results obtained by Bayley and Schaefer (1958) who reported a slight tendency for mothers of a higher socio-economic level to be more warm, understanding, and accepting while mothers of lower socio-economic status were more controlling, irritable and punitive. It was hypothesized that there would be a relationship between race and Impunitiveness. Contrary to the hypothesis, no relationship was found between race and a tendency to react to frustration in an impunitive manner.

The summary of the findings indicate that children who respond to frustration in an Impunitive manner tend to come from upper-lower socio-economic backgrounds and tend to have mothers whose attitudes towards child-rearing practices are not hostile or rejecting. Furthermore Impunitive children tend to score higher on creativity scales than those children who respond to frustration in other fashions. As a child grows older, his responses to frustration are likely to become more impunitive in nature. Impunitiveness is independent of such variables as race, intelligence test performance, academic achievement, and perceived acceptance or intrinsic valuation by parents, teachers and peers.

Intrapunitive

As opposed to those children who, according to Rosenzweig responses, tend to project blame for frustration to the oustide environment (E); it was expected that children whose Rosenzweig protocols indicate that they are inclined to internalize blame for frustration would evidence positive relationships with selected variables included in this study. It was reasonsed that those individuals who were inclined to blame themselves for events

leading to frustration would be more likely to seek relief from the anxiety inherent in such self-blame through positive action, than those who respond to frustration by blaming outside forces of "glossing over" the problem. Rosenzweig's (1948).

In an earlier study, Levitt and Lyle (1955), found a significant correlation between intelligence test scores and the Intrapunitive scores on the Rosenzweig Picture Frustration Study. One rationale for this finding may be that bright children will be more successful in coping with their environment and, thus, can assume responsibility for their errors with less ego defensive behavior while the dull child will be able to cope with his environment and he must seek external scapegoats on which to blame his frustration if he is to remain reasonably free of anxiety. A similar relationship, that of Levitt and Lyle was hypothesized for the group included in the present study.

In contrast to the findings of Levitt and Lyle and the present hypothesis, no significant relationships obtained between Rosenzweig's Intrapunitiveness Scale and the intelligence test socres or subscale scores, with the exception of the Similarities Scales of the WISC. This relationship may well be due to chance factors. It is probable that the discrepancy between the present findings and those obtained by Levitt and Lyle is, at least partially, due to the restricted IQ range of the population included in this study. If the present sample had been representative of the total population, a relationship between Intrapunitiveness and intelligence test scores might have been found.

It was believed that intropunitive children respond positively to challenge in order to relieve themselves of anxiety inherent in the self-blame which follows failure. Thus, it was hypothesized that intrapunitive children would achieve at a higher level than would children who use other modes of responding to frustration.

An inspection of the correlational matrices reveals significant relationships between Intrapunitiveness and all six scales of the Stanford Achievement Tests and all the eleven scales on the Iowa Tests of Basic Skills. It can be noted, however, that test results are related to both age, intrapunitiveness and achievement. Partial correlations holding chronological age constant might explain the relationships between Intrapunitiveness and achievement.

On the other hand, it should be noted that, of the three Rosenzweig scores which are considered to indicate direction of response to frustration, only the Intrapunitiveness score correlates significantly and positively with any of the achievement test results. From a global standpoint, then, it may be, as hypothesized, that the intrapunitive child is more likely to achieve at a higher level than children who respond to frustration in extrapunitive or impunitive manner, but the effects of maturation associated with chronological age have masked any reltionship.

It was also hypothesized that, of the children included in this study, those who scored high on the Intrapunitive Scale would be more creative than their peers. Although significant relationships were found between 1 and three of

the creativety measures, a partial correlation holding the effects of chronological age constant reduces the correlations between the Intrapunitive Scale and Creativity Variables to less than significance thus, indicating the hypothesis. One possible explanation for the intrapunitive pupils failure to develop their creative ma, lie in the attitudes of those with whom the intrapunitive pupil has contact. Torrance (1962) indicates that creative individuals often find themselves in a situation of "psychological estrangement" from parents, teachers and peers. In an attempt to avoid the self-blame from the frustration inherent in such "estrangement", the intrapunitive pupil may well stiffle those "creative" characteristics which would be regarded as deviant or different by his immediate society.

Another hypothesis concerning the Rosensweig Scale stated that the children included in this study who are inclined to internalize blame for frustration would perceive themselves as better accepted by peers, teachers and parents. When the effects of chronological age are held constant, only partial support is provided for the above expectation. No signigicant relationships were found between Intrapunitiveness and the Perceived Peer or Perceived Parent Acceptance and Intrinsic Valuation scales. On the other hand, significant relationships did obtain between I and both Teacher Acceptance and Intrinsic Valuation indicating that, although the Intrppunitive pupils did not see themselves as better accepted by peers or better accepted and intrinsically valued by parents than the other children in this study, they do see teachers as both accepting them and intrinsically valuating them.

It will be recalled that intrapunitive pupils were higher achievers than the other subjects in this study. On the basis of the data analyzed, the perceived teacher acceptance and intrinsic valuation of the pupil are related to two facts that is, pupils who are both intrapunitive and relatively high achievers are more likely to see themselves as accepted and intrinsically valued by teachers than those who are not significantly high in either area.

It will be recalled that intrapunitive pupils were higher achievers than the other subjects in this study. On the basis of the data analyzed, perceived teacher acceptance and intrinsic evaluation of the pupil are related to two facts, that is, pupils who are both intrapunitive and relatively high achievers are more likely to see themselves as accepted and intrinsically valued by teachers than those who are not significantly high in either area.

Previously cited researchers (Battle and Rotter 1963) offer evidence that middle-class children are more likely than lower-class children to accept personal responsibility for happenings and events. Since high scores on Rosenzweig's Intrapunitive Scale imply similar dynamics through internalization of blame for frustrating events, it was expected that the subjects of this study who scored high on Rosenzweig's I Scale would be of higher socio-economic status. The data does not support the above hypothesis in that no significant relationship exists between I and socio-economic status. The discrepancy between the findings of this study and those of Battle and Rotter can, perhaps, best be explained by comparing the population groups included in the two studies. Whereas Battle and Rotter were comparing lower and middle-class groups, the finding of this study are concerned only with probable difference within a lower socio-economic group. It is possible,

therefore, that the establishment of significant relationships between Intrapunitiveness and socio-economic status was prevented because of the restricted range of the socio-economic group represented in the present study.

It was reasoned that children who are able to internalize blame for frustration would have greater ego-strength than those children who externalize blame for frustration or feel the need to ignore or "gloss over" the frustrating instance. Intrapunitive children, then, would be less defensive and have better self-concepts than children who resort to other modes of coping with frustration. Since parent-child relationships are a major factor in the emotional development of the child, it was hypothesized that intra-punitive children would come from homes where parental attitudes towards child-rearing were relatively positive. The findings provide differential support for the matrices.

It can be seen that a negative relationship between hostile-rejecting attitudes on the part of the mother and I. This finding reveals that, Intrapunitive children are likely to come from families where the mother manifests acceptance and low hostility in her relationships with the child. Such relationships seem conducive to the establishment of adequate ego-strength on the part of the child which would allow him to internalize blame for frustration while maintaining a positive self-image. On the other hand, a significantly negative relationship was found between Intrapunitiveness and Democratic attitudes on the part of the father. The "Democratic" Scale of the PARI is associated with such factors as "encouraging verbalization, strictness, equalitiarism, conradeship and sharing". It will be noted that the above factors conote a closeness between father and son on an involvement of the father in the parent-child relationship. It is possible, therefore, that while not actually rejecting the child or attempting to control him (evidenced by no significant correlation between I and father hostile-rejecting or authoritarian-controlling) the father of the intrapunitive child may also not involve himself actively in the more positive aspects of child-rearing. The picture emerges, then, of the father who, for the most part, disassociates himself from the child - yet does not necessarily harbor negative feelings towards him.

Contrary to the stated hypothesis, a significant relationship was not found between Intrapunitiveness and race. The data indicates, therefore, that the tendency to internalize blame for frustration is based on factors other than racial group membership.

In summary, the findings indicate that, for the population studies Intrapunitiveness is independent of such factors as intelligence tests scores, creativity, perceived peer acceptance and perceived parent acceptance and intrinsic valuation, socio-economic status and race. On the other hand, the intrapunitive child is likely to achieve at a higher level than his peers, perceive himself as better accepted and intrinsically valued by his teachers, and come from a family where the mother is less hostile and rejecting in her attitudes toward child-rearing than mothers whose children react to frustration in other ways. The father is seen a fulfilling a rather neutral role wherein he does not reject the child nor attempt to control him, but neither does he seek a particularly close relationships with the child.

Need Persistent

It was reasoned that children who continued to work towards the solutation of the original goal, when confronted with frustration, would generally speaking, be more productive individuals than those children who react to frustration in other ways. It was assumed that many variables would affect the productivity of individuals. Some of these variables might be such factors as race and socio-economic status. For this reason, a positive relationship was expected between N.P. and certain of the variables in this study.. The tendency to persist towards a goal in the presence of frustration was measured by the Need Persistence (N-P) Scale of the Rosenzweig Picture Frustration Study.

Contrary to expectation, no relationships were found between Need Persistence and variables such as race and socio-economic status. For these culturally disadvantaged children of high potential, then, the tendency to pursue an original goal in the face of frustration is independent of socio-economic factors and racial background.

On the other hand, very limited support is provided for the hypothesis that the subjects of this study who score high on the H.P. Scale would score higher than their peers on tests of intellectual functioning. When the effects of chronological age are controlled through partial correlation, significant relationships remain between N-P and scores on the WISC Object Assembly Subtest of the total WISC Performance Scale. Since N-P is only related to the one subtest, Object Assembly, the findings suggest that N-P is related only to performance as measured by Object Assembly type tasks, rather than Performance in general. Thus, it may well be that success on the Object Assembly task is a function of persistance toward a goal in the face of frustrations.

Success of failure on verbal items such as those making up the Stanford-Binet or Verbal Scale of the WISC, may be more difficult for the pupil to judge than performance tasks since they are less concrete. If this is the case, although the Need Persistent subject may respond to all verbal tasks - no matter how difficult-he may be satisfied with an inaccurate response. In the same way, certain of the Performance Type Tasks are more subject to self criticism than others. For example, on the Picture Completion test a student who scores high on N-P may pick an irrelevant, yet to the student, a meaningful missing part for his answer. Such an answer would satisfy his need to present, yet result in a low score. Object Assembly, on the other hand, would seem to be the most "self correcting" type of task in that the student would not feel satisfied with his efforts until he had attained closure. If this post hoc explanation is tenable, then, it may well be that Object Assembly scores reflect Need Persistance more than the other sub scales of the WISC.

It was expected that pupils who scored high on the Rosenzweig Need-Persistence Scale would outperform their peers in both the Creativity and Achievement areas. The above hypothesis were based on the assumption that the need for completion of a task in the face of difficulty and frustration would result in higher scores on both the Achievement and Creativity Batteries. Although significant relationships were found between N-P and certain achievement test scales and creativity factors, partial correlations holding the

effects of chronological age constant, reduced, these relationships to less than significance, thereby, negating the hypotheses.

Because it appeared that the Need-Persistent children would be more likely than others to see a task through to a solution, it was expected that likely accomplishments associated with such behavior would result in Need-Persistent children obtaining greater acceptance from others. Acceptance by others should help develop feelings of acceptance in Need-Persistive Children. After controlling the effects of chronological age, correlations reached significance only on the Perceived Teacher Intrinsic Valuation and Perceived Teacher Total Scale. On the basis of the findings, therefore, it would appear that the Need-Persistent children perceive their teachers as valuing them for their intrinsic worth, but not as acceping of them any more than of other children. One explanation for the above findings might be that these children are, more than others, willing to persist to the completion of school assignments. If this is true, then, teachers may actually tend to value the Need-Persistent student more than his peers because of his willingness to persist in academic areas.

It was hypothesized that culturally disadvantaged children of high potential who persist toward goals when confronted with frustration would come from homes where parental attitudes toward child-rearing are relatively postivie because it was reasoned that children who persist toward goals in spite of frustration would come from homes where general child-rearing practices were conducive to building feelings of confidence and self-esteem. It can be seen that higher scores on the Need-Persistence measures are negatively related to scores on the Mother Hostile Rejecting Scale of the PARI. The data indicates, therefore, that mothers of Need-Persistent children are not likely to hold hostile or rejecting attitudes towards child-rearing practices, thus, providing partial support for the above hypothesis.

In summary, scores on the Need-Persistence Scale of the Rosenzweig Picture Frustration Study seem to be relatively independent of race, socio-economic status, creativity, achievement, perceived peer and parent attitudes, and scores on Verbal measure of intelligence. Relationships were found, however, between N-P scores and the Object Assembly subtest of the WISC, Perceived Teacher Intrinsic Valuation and the Mother Hostile-Rjecting scale of the PARI. The latter relationship was such that mothers of Need-Persistent children are less hostile-rejecting than mothers of children who respond to frustration in other ways. It would appear, therefore, that Need-Persistent children do better on tasks where success is readily evident, are intrinsically valued by teachers, and come from homes where mothers are not hostile or rejecting.

Ego Defensive

Although a certain amount of ego-defensive behavior in the face of frustration is normal and may even be necessary to the emotional well-being and general functioning of the individual, it was believed that children who over-employ ego-defense mechanisms would be emotionally insecure to the extent that their productivity would suffer and they would have difficulty with interpersonal realtionships. Furthermore, it was believed that the tendency

to over-employ ego-defense mechanisms would be related to other variables such as race and socio-economic status. The Ego-Defense (E-D) Scale of the Rosenzweig Picture Frustration Study provides a measure of the extent of which the individual employs ego-defense mechanisms when confronted with frustration.

An examination of the correlation matrices revealed no significant relationships between E-D and achievement test scores, creativity factors, and intelligence test scores. The hypotheses predicting that culturally disadvantaged children of high potential who scored high on the Rosenzweig E-D Scale would not as well as their peers on the above measures must, therefore, be rejected. In addition, significant correlations were not found to exist between E-D and race and socio-economic status, thus negating the hypotheses that children who scored high on the E-D Scale would tend to be of the Negroid race and of lower-lower socio-economic status.

It was believed that certain types of defensive behavior in the face of frustration such as projection of blame or denial of responsibility would be manifested by those subjects who perceive themselves as less well accepted by peers, parents and teachers. The findings provide partial support for the above hypothesis in that, when chronological age is held constant through partial correlation, there remains significant relationships between E-D and Perceived Peer Acceptance and Perceived Teacher Intrinsic Valuation such that Ego-Defensive pupils do not perceive themselves as well accepted by peers or as intrinsically valued by teachers.

It was also hypothesized that these culturally disadvantaged children of higher potential who scored high on the Rosenzweig E-D Scale would come from homes where parental attitudes toward child-rearing were not positive. The above hypothesis was based on the belief that children who found it necessary to over-employ ego-defensive mechanisms would probably have parents who are more critical and less accepting in their child-rearing practices than parents of children who used other coping mechanisms. The findings lend support to the above hypothesis in that significant relationships exist between the Rosenzweig E-D Scale and both the mothers' and fathers' attitudes as measured by the Hostile Rejecting scale of the PARI.

In summary, it would appear that the tendency to ego-defensiveness on the part of the subjects included in this study is independent of such variables as race, socio-economic status, creativity, achievement and scores on intelligence tests. On the other hand, Ego-Defensive children are likely to perceive themselves as less well accepted by peers and less intrinsically valued by teachers than other subjects making up the sample population of this study. Furthermore, Ego-Defensive subjects are likely to come from homes where both the mother and father are hostile and rejecting in child-rearing attitudes.

Obstacle Dominant

High scores on the Obstacle Dominance (O.D.) Scale of the Rosenzweig Picture Frustration Study, according to Rosenzweig (1948) indicate that, when confronted with frustration, the subject becomes overwhelmed and

blocked. That is, he is unable to take positive action to cope with the frustration, itself. He does not seek relief from the frustration through employment of ego-defense mechanisms nor does he persist to some solution of the problem. Since the tendency to become overwhelmed by frustrating instances connotes little in terms of positive coping action, negative relationships were expected between certain of the variables under study and high scores on the Obstacle Dominance Scale of the Rosenzweig Picture Frustration Study.

It was hypothesized that the subjects of this study who were apparently blocked by frustrating situations would obtain lower intelligence quotients. In order to obtain a sample of the child's maximum intellectual performance on intelligence scale, it is necessary to ask questions which the child finds challenging, difficult, and finally impossible to answer on the basis of information that he has accumulated. In the Performance areas, tasks become increasingly complex to the point that the subject can usually no longer successfully handle them. It was believed that the child who tended, more than others, to become blocked by frustration would be less likely to respond to difficult intelligence test items than others such as those who see new ways to overcome frustration through positive action. A perusal of the correlation matrices does not support the stated hypothesis in that significant relationships with the Obstacle Dominance Scale were not found with the Stanford-Binet, WISC Verbal, WISC Performance, or WISC Full Scale intelligence measures. Although significant relationships did obtain between O.D. and the WISC Vocabulary and Picture Completion sub-scales, these relationships are difficult to explain and may well be due to chance factors.

Children who are apparently blocked by frustrating situations were believed to be both socially and emotionally immature. Consequently, it was expected that they would tend to be less successful in their daily living with regard to such factors as academic achievement, interpersonal relationships, and creative functioning. It was, therefore, hypothesized that children who scored high on the Rosenzweig Obstacle Dominance Scale would achieve at lower levels than their peers, score lower on measures of creativity variables, and perceive themselves as less well accepted by parents, teachers and peers. Relationships were not found between O.D. and any of the above factors, thus negating these hypotheses.

It was also hypothesized that those children who, more than others, tended to find themselves blocked in frustrating situations would be of lower-lower socio-economic status. This hypothesis was based on the belief that children who have been reared in poverty would find it more difficult than most to cope with the frustrations inherent in daily living. It was believed that these children would generally hold little hope of improving their condition and would, thus, find themselves overwhelmed by day-to-day frustrations and failures. The data does not support the above hypothesis in that no relationships were found between OD and socio-economic status.

Contrary to the hypothesis that these culturally deprived children of high potential who scored high on the Rosenzweig OD Scale would come from families whose parents attitudes towards child-rearing were less positive, no significant relationships were found between OD scores and measures on the PARI.

Consistent with the negation of previous hypothesis, the data does not support the hypothesis that OD would be related to race.

In summary, Obstacle Dominance scores were found to relate significantly with only two of the total number of variables included in this study other than intra-test variables. From a statistical standpoint, then, it seems safe to assume that Obstacle Dominance had essentially no relationship with other variables except that which might be expected by chance. It, therefore, appears that the Obstacle Dominance Scale may measure aspects of behavior other than those considered in this study.

Chapter VI

INTERPRETATION OF CASE STUDIES

Summary of Case Study Findings

An analysis of data obtained from a psycho-educational diagnosis of each child in this study has supplied additional and supplementary information concerning each culturally disadvantaged child in the study. These case studies utilized both quantitative and qualitative data. Quantitative data were obtained through the use of standardized and objective research instruments in the areas of intellectual functioning, achievement, psycholinguistic abilities, creativity, perceived peer, parent, and teacher attitudes, attitudes of parents, and reactions of children to frustration. Qualitative data were from projective techniques, clinically structured interviews with children, parents, teachers, and agency personnel conducted by the psychologist, social worker, coordinator, and consultant for the project. Careful analysis of each case study was conducted to determine differentiating environmental and personality variables which appear to have a bearing on the children's ego development and their consequent adjustment to the school situation.

The total group of subjects in this study was made up of the top 20 per cent of the culturally disadvantaged with respect to intellectual functioning in the elementary schools of this school system. Nevertheless, there was a wide range of cultural deprivation, intellectual functioning, and personal adjustment within this population. For purposes of comparison these subjects were sub-divided into two socio-economic groups--the upper-lower and lower-lower. Although differences between groups were manifested, these differences seemed to be a matter of degree rather than kind. While there were identifiable characteristics representative of the group as a whole, it must be pointed out that each culturally disadvantaged child did not necessarily exhibit all of these group characteristics.

An evaluation of the 203 case studies disclosed the following factors which appear to be associated with cultural deprivation as related to school experiences: The following delineates specific areas of weaknesses of these culturally disadvantaged children: (1) level of aspirations unrealistically high or unrealistically low; (2) extrinsic values predominate over intrinsic values; (3) peer relationships superior to authority figures; (4) internal controls inadequately developed, dependent on external controls; (5) reduced attention span, distractible, and inclined toward hyperactivity and impulsivity; (6) tendency toward rigidity and stereotyped responses; (7) negativistic toward school and school-like tasks; (8) excessive striving for attention and recognition; (9) poor self-concept, lack of confidence, and feelings of inadequacy; (10) suspicious and distrusting of adults; (11) quality of expressive abilities inadequate to cope with expectations of school; (12) immediate gratification of needs takes precedence over development of long term goals; (13) parents perceived largely in terms of fulfillment of extrinsic needs; (14) perceive themselves as having few friends; (15) easily frustrated when coping with school-like tasks; (16) function best in a structured situation where limits are firmly set; (17) limited background of experience to insure optimum school progress; (18) easily over-stimulated by new situations and experiences; and (19) evidences gaps or deficits in intellectual functioning.

While these children have numerous weaknesses, the following strengths were noted during the psycho-educational diagnosis: (1) respond favorably to individual attention and recognition; (2) respond positively to new experiences when the necessary structure is provided; (3) self-sufficient within the limits of their environment; (4) responsive to physical and game-like activities; and (5) desire to be accepted and appreciated.

This study clearly accentuates the hypothesis that even the culturally disadvantaged with higher potential have many psycho-educational problems similar to culturally disadvantaged children in general. Although these problems seem to decrease with the increase in socio-economic status, the problems, nevertheless, are evident in degree for the group as a whole in this investigation. In a society such as ours which is so dependent on full development and utilization of its human resources for its survival, we can not continue to allow such valuable untapped human resources to go to waste. School systems must assume more responsibility for the identification of the culturally disadvantaged, especially those with high potential, and provide these children with the educational programs and services that will enable them to develop and use their potential to the fullest.

Representative Case Studies

The following four case studies were selected as being representative of the upper-lower and lower-lower culturally disadvantaged children with higher potential. The first two cases are of girls, one from the upper-lower group and one from the lower-lower group. The last two cases are boys, one from the upper-lower group and the other from the lower-lower group. Based on the information obtained from case studies such as the following, it is possible to formulate an intensive, individualized treatment program with special attention to ameliorating specific learning deficits.

Case of Peggy (Lower-Lower SES)

Peggy, a six year old Negro girl who appeared small for her chronological age, had just completed kindergarten at the time of the case study.

I. Diagnostic Information

Social History

Peggy is next to the youngest child in a family of lower-lower socio-economic status. Her six siblings range in age from five months to thirteen years. The parents are divorced as a result of the father's abusiveness toward the mother and children, his whereabouts are unknown. The youngest child in the family is illegitimate. The extended family constellation includes an aunt and her two year old child.

The family receives a public aid grant of $300 per month which is their sole substance; however, the mother does work some of this grant off by part-time employment as a seamstress at a local nursing home.

The family lives in a substandard three bedroom house which is inadequate for the number of people residing there. Cleanliness and sanitation

facilities are questionable. Home conditions appear to offer little in the way of materialistic advantages and intellectual stimulation. Supervision and stability afforded by the home environment are minimal. The mother seemingly is emotionally immature and unresponsive to the children's needs. The aunt assumes a large portion of the responsibility for the rearing of the children. Discipline in the home consists of physical punishment, verbal abuse, and confinement.

Medical History

No complicating factors were reported in pregnancy and birth. Peggy accomplished various developmental tasks such as sitting alone, walking and talking within the normal range. Medical examination disclosed Peggy had a kidney infection and had a history of frequent and persisting colds. The doctor stated that symptoms of malnutrition were present.

School History

Peggy entered kindergarten at the age of five. Her initial adjustment to school was fair. She demanded a great deal of individual attention and reassurance and frequently sulked when something did not go her way. Her school progress was thought to be average in a group of culturally disadvantaged children. Her overall attitude toward school appeared to be negative; she was not task-oriented. In talking with her, it became apparent that she preferred playing with fellow classmates to attending to school tasks. The mother did verbalize a positive attitude toward school and the importance of an education; however, it was felt that she was expressing opinions that would make a favorable impression on the interviewer. She said that she was happy that Peggy was selected to be in the program and hoped she would take advantage of it.

Psychological Evaluation

Peggy's behavior during the testing session was characterized by hyperactivity, inattentiveness, and distractibility. It was necesaary for the examiner to place firm limits on her behavior, however, a somewhat dependent relationship evolved from establishing such a structure. After a time, Peggy settled down and appeared to put forth sufficient effort on the tasks presented.

Peggy was found to be functioning within the average range of intelligence. On the Stanford-Binet Intelligence Scale, she obtained an IQ score of 107, her chronological age being 6 years, 1 month, and her mental age 6 years, 6 months. On the Wechsler Intelligence Scale for Children she attained a Verbal IQ of 116, a Performance IQ of 96, and a Full Scale IQ of 107. Although the total IQs on these two instruments are similar, they do not seem to provide a true indication of her potential learning ability. For example, her poorest performance was on vocabulary items which are highly influenced by cultural background. Peggy had considerable difficulty in expressing herself verbally using correct grammatical forms. For example, she substituted "mans" for "men" and "knifes" for "knives", etc.

Adding credence to the opinion that the obtained IQ scores are not accurate estimates of her true potential is the fact that she performed so well on those items involving similarities on both scales. She had little difficulty understanding and dealing with abstract concepts presented in verbal form. Abstract concepts presented in non-verbal form, however, seemed to cause her considerable difficulty. For example, on

the performance subtest of the WISC, designed to measure one's ability to analyze a given pattern into its parts, she failed to grasp the visual spatial configuration of parts necessary to organize these parts into a whole. Her performance on the visual-motor sequencing test of the ITPA gives further support to this finding. The primary factor contributing to her low performance on these performance type tasks seems to be directly related to her culturally deprived background. Peggy's ability to perceive, reason out, and evaluate situations in everyday life apparently have helped her toward attaining and maintaining a fairly adequate level of adjustment within her sub-cultural environment as well as in the dominant cultural environment. Peggy's retention of auditorially presented materials of a non-meaningful nature, such as the recall of digits, seems to have been affected by personality factors such as her distractibility and inattentiveness. This too, is seen to be directly related to her cultural background. On the Primary Mental Abilities Test, her performance was equivalent to her chronological age in verbal meaning, perceptual speed, and quantitative ability. Her performance in the area of verbal meaning closely approximated that of the vocabulary on the WISC and Binet. Her poorest performance on the PMA was in the motor and space areas. These areas purport to measure the ability to visualize and think about objects in two or three dimensions and to coordinate hand and eye movement. These findings support her relatively low scores on the Performance sub-tests of the WISC. This, too, is seen as reflecting the lack of experiences afforded by her cultural background.

Although no overt emotional problems were evident at the time of this evaluation, it appears from social history, behavior, and projective data that this girl has experienced considerable emotional deprivation. She exhibited unusually strong needs for warmth and attention. Peggy appaared to have developed a satisfactory relationship outside of the family constellation, she had several playmates her own age in school as well as outside of school. On the Rosenzweig Picture Frustration Test, her responses suggest that her ability to meet stressful social situations in a conventional fashion is equivalent to that of most youngsters her age. According to projective data, when faced with a frustrating situation, her direction of aggression tends toward uninhibited extra-punitive aggression. While others might gloss over a frustrating episode without apparent aggression, she is likely to express aggression against the environment. If such behavior, however, fails to remove the stressful situation, she then may adopt a pattern of inactivity rather than persisting toward a solution to the problem. In the face of continuing frustration, the teacher might expect this child to initially act out and if thwarted exhibit a pattern of passivity and apathy.

Peggy's level of aspiration, as indicated by an interview, was low and seemed indicative of her deprived background. Her aspiration was to be a domestic servant. She appears to value school attendance primarily for the social interaction. Peggy has not learned to delay her own personal gratifications in order to derive the fullest benefit from her school experience.

II. Recommended Educational Programming

The test data suggests that Peggy has intellectual potential which has not effectively developed because of her cultural background. Indications are

that she could benefit from a specially designed program which would provide her with broader, more stimulating experiences than those to which she has previously been exposed. She also needs specific help in ameliorating certain learning deficits.

Intellectual and Psycholinguistic Abilities

One of Peggy's major difficulties is in the area of verbal expression (e.g., acquisition of automatic habits for handling the syntactical and inflectional aspects of language). Her retarded vocabulary development as well as her limited ability to use and recognize correct grammatical forms might be enhanced by associating word meanings with concrete experiences designed to bring out the significance of the term or by relating them to certain events. Reading and talking to Peggy and engaging her in conversations in the classroom or excursions to local points of interest should also be beneficial. First-hand experiences such as role-playing, dramatization, and field trips also would provide the kinds of experiences that would strengthen Peggy's primary language weaknesses. The teacher should build readiness for experiences, carefully guide the learning experiences, and reinforce learnings. New experiences must be sequential in terms of order of difficulty and complexity. Comprehensive labeling should be used as the focal point for the learning of subject matter in the classroom. With her increased vocabulary and language development, Peggy should be in a better position to learn to express herself verbally. To further help her develop this ability and gain confidence in this respect, she might benefit from exercises involving the description of objects or occurrences in some detail and in several different ways, using as many adjectives and adverbs as possible. As her verbal ability increases so should expectations include more complex verbal tasks such as evaluation and interpretation of activities.

Because of her poor verbal ability in expressing herself, it seems she would profit from activities which would help her acquire or enhance perceptual abilities and thus provides a conceptual basis upon which to build more complex language skills. Peggy might profit from opportunities to see and physically manipulate objects of a concrete nature--particularly puzzle-type activities. This should enhance her ability to analyze a pattern into its parts and strengthen her visual spatial abilities. More exposure to these types of activities offered in the arts and crafts should enhance her abstract reasoning of non-verbal materials, which might have a positive carry-over into reasoning with verbal materials.

Achievement

The teacher's evaluation of Peggy's readiness to read indicated that her chances were fair. Her rate of progress seemed average in a group of culturally disadvantaged children but below school system norms. Her attitude toward school and formal learning appeared to be negative which, of course, may have a detrimental effect on her total school adjustment. The teacher might help alter this attitude by providing positive and challenging experiences in academic tasks in which Peggy can experience a great deal of success. Since she would rather play than work in school, a "game" approach to learning should be worth considering. The mother's assistance would be invaluable in helping Peggy develop a more positive

attitude toward school. Suggestions and guidance in this respect might be given the mother by the teacher. Such aspects as positive reference to school at home, expressing overt interest in school activities, giving praise for good work brought home, and involvement in matters pertaining to school would be areas to discuss and plan with the mother and/or aunt. Since Peggy's aunt assumes a large portion of the responsibility for the children in the home, it is probable that the teacher will have to work through her on occasions.

The teacher should keep in mind that Peggy will need more help than most youngsters in learning school "know-how". She does not possess good study habits, strong powers of concentration, or test taking sophistication.

Social and Emotional

Peggy has exhibited an unusually strong need for warmth and attention. It seems likely that she has been deprived of emotional support in the home. In the classroom she should be given as much attention and praise as possible. Tasks of a non-academic nature which would involve "helping" the teacher would seem to provide a framework for fulfilling this need. Since the crux of the problem undoubtedly stems from the home, it would be most advantageous if the mother could spend a few minutes a day with Peggy on school related activities such as reading to her, discussing experiences with her, and involving her in day-to-day activities in the home such as cooking, cleaning, shopping, etc.

It would also be beneficial if the teacher understands that Peggy's first reaction to frustration will likely be one of aggression toward either the environment or the one she perceives as being the perpetrator of the frustrating situation. If such behavior is thwarted, she may adopt a pattern of inactivity culminating in passivity and apathy. Therefore, when Peggy becomes moody, sulky, or pouty, the teacher should recognize these as symptoms of frustration and re-evaluate the preceeding occurrences to determine the basis for her behavior.

Case of Marietta (Upper-Lower SES)

Marietta, an eight year old Caucasian girl of average size for her chronological age, had just entered third grade at the time of the case study.

I. Diagnostic Information

Social History

Marietta is the third of five children born to a family of upper-lower socio-economic status. The father, who completed the eighth grade in school, is a meat cutter by trade. As a result of a serious accident, the father had not worked for several weeks. The mother, who completed twelfth grade in school, is employed at a local electronics manufacturing plant as an assembly line worker. The combined earnings of the parents is around $515 per month.

The family is buying their home, which is considered to be quite small for the size of the family and is in poor physical condition. Furnishings in the home are quite sparse and in need of repair. There were no books,

record player, nor any other form of cultural stimulation except a television set in the living room which completely dominated the room. Although the family apparently has a larger income than some of the subjects, they are living on a marginal level which is understandable considering the size of the family and the cost of living in this particular community.

The parents seem to have a good relationship with each other. The children appear secure in the home although the parents tend to be somewhat curt in dealing with them. It seemed doubtful that too much emotional warmth was shown to the children but the parents appear intelligent and sincerely interested in the achievements of their children, although it was appaaent that there was little understanding of how to promote intellectual growth in children.

Marietta exhibits a great deal of sibling rivalry. She is quite stubborn in terms of standing up for her own rights. The parents feel that she gets along well with children of all ages, but particularly those near her own age and that she enjoys playing with groups. She tends to be a leader.

Medical History

The mother stated that her pregnancy with Marietta was normal and full term with no complications at birth. Following birth Marietta was found to be a blue baby but this cleared up very shortly with no after effects. There were no particular feeding problems but Marietta did have what was termed the "three month colic". She was toilet trained at about 14 months of age and was easy to train, according to the parents. The parents could not recall at what age she learned to sit, walk, or talk but felt that it was at an average age. She is a good sleeper and experiences no enuresis and apparently she has no fears. She has had three day measles, mumps, and chicken pox. Immunizations were up to date.

School History

Marietta entered the first grade at the age of six years and five months without prior kindergarten experience. She has been able to make average academic progress and is a good strong C student. While the parents believe Marietta likes school and gets along well with her teachers, her attitude toward school seems not to be altogether positive. The teacher reported that Marietta has a social problem in the classroom. She seems preoccupied with actions of others. Children in the class like to tease her, especially the boys. She does acceptable work most of the time and occasionally shows sparks of creativity.

Psychological Evaluation

During the testing session, Marietta was relaxed and quite free and spontaneous in her conversation with the examiner. It was apparent that she was quite enthusiastic and highly motivated for taking the tests. Thus, cooperation was never a problem. She tended to become somewhat frustrated, however, on certain tasks where she had to persist for some length of time without success. This did not pose a serious problem since she responded favorably to encouragement and praise.

On the Stanford-Binet Intelligence Scale, Marietta attained an IQ score of 117, her mental age of nine years, two months being considerably above her chronological age of seven years, nine months. On the Wechsler Intelligence Scale for Children she attained a Verbal IQ of 96, a Performance IQ of 89, and a Full Scale IQ of 92.

The reason for the discrepancy between her performance on the two intelligence scales is not readily apparent. On the Stanford-Binet, she passed several items at a higher level involving auditory and visual memory which tended to elevate her score. Also, she was successful on those items requiring the knowledge and ability to reason out and deal with problems of a practical day-to-day nature. Her language and vocabulary development relevant to academic achievement is not as high as might be expected for a child of her chronological age and ability. She does not have the necessary fundamental foundation for the development of higher level abstract thinking. That is, she was weak in the ability to perceive and differentiate likenesses and differences between objects, symbols and ideas, is poor with respect to her reasoning ability as applied to ascertaining relationships, and ability to generalize. This seems to be the most significant deficit in her functioning at this time. Precluding the development of these various abilities is her need for increased awareness for detail in her environment which would help facilitate her perceptual and conceptual development. Test data revealed no specific psycholinguistic deficit, although her subtest scores were generally lower than expectancy. She was markedly lower on the visual-motor subtest.

It was observed in her performance on the creativity test that she is quite rigid and stereotyped in her thinking. Except for very minor deviations, she tended to follow one line of thought which pointed up her ineptness in terms of a divergent style of thinking. Judging from her performance on this test and the indicated strength in her intellectual functioning, it is suspected that Marietta tends to feel more comfortable in a classroom situation where materials are presented in a well structured fashion and where she could rely heavily on memory to maintain an adequate level of achievement.

Marietta attained the following grade scores on the Stanford Achievement Test: Word Meaning, 3.2; Paragraph Meaning, 3.1; Science and Social Studies Concepts, 2.9; Spelling, 3.4; Word Study Skills, 1.9; Language, 2.0; Arithmetic Computation, 2.8; and Arithmetic Reasoning, 2.3. While she appears to be achieving below mental age expectancy in all areas, seemingly she is more markedly retarded in arithmetic computation, language, and work study skills than in other areas.

Marietta appears to be fairly well adjusted both socially and emotionally. She has a great deal of self-confidence and seems to feel fairly secure. It appears that she is quite realistic in her approach to life and tends to reason out problems confronting her in lieu of behaving in an impulsive fashion. A higher level of maturity was reflected in her ability to delay gratification. In her relationships with others, she tends to assume a cooperative and compliant role, especially with adults. With her peer group, she likely exhibits more aggressiveness in terms of competitive concerns. Marietta places a great deal of emphasis on success but is not entirely motivated by a need to do better than others. Rather, part of her motivation eminates from an internal desire to increase her level of effectiveness and functioning. In other words, she appears to

compete with herself. This may be an erroneous assumption as her classroom concerns with the progress of other children suggests that her apparent internal competitiveness may be defensive in nature. In other words, Marietta may actually fear to have her progress compared with others.

When interviewed regarding what she would like to be when she grows up, she indicated a preference for being a factory worker. While this choice suggests identification with her mother, it also points out a low level aspiration which may be inherent in family values.

II. Recommended Educational Programming

The test data suggest that Marietta, even though she is identified as being a member of an upper-lower socio-economic status family, has a number of deficits which seem to reflect the effects of her cultural background. She seems to need specific help to promote accelerated development in her weaknesses.

Intellectual and Psycholinquistic Abilities

It would appear that early deprivation has resulted in a gap in her intellectual functioning. For example, although this child operates quite well on tasks involving rote memory, both auditory and visual, and is able to deal with problems of a common sense nature, she finds it difficult to handle abstractions and is deficient in her ability to generalize, as reflected by her below average score on the WISC Performance Scale. Marietta was evidently not provided with sufficient auditory visual perceptual experiences in the home in the preschool years. It appears that she needs to engage in some structured activities which will promote the acquisition of perceptual skills leading to improved high level thought processes. For example, adoption of activities based on Piaget's concepts would seem appropriate. Such activities would include classifying similar objects on the basis of different characteristics beginning with the supra class and breaking this general class down into sub-classes and recombining into the super class thus using both deductive and inductive thinking. Such activities and procedures should help her become more proficient in generalizing. These exercises should be sequential beginning with the simple and going gradually to more complex and multivariable demands.

Her ability to formulate relationships can be enhanced by activities involving manipulation of objects of a concrete nature by being provided with meaningful, first hand experiences skillfully guided by the teacher, and by giving her many opportunities to verbalize these concrete experiences orally and in writing. When working with a puzzle, the teacher could help her visualize why one piece of the puzzle goes in a particular place and guide her in seeing why she makes a particular choice. Discussions of what she saw on a field trip, focusing on likenesses and differences, on cause and effect, and on specific relationships to her own experiences should stimulate and enhance her abilities to draw conclusions and to generalize and abstract.

Achievement

Marietta is functioning at grade level in reading; however, her mental age on the Stanford-Binet (IQ 117) would suggest that she is working

below her potential, especially in the light of the fact that her measured level of intellectual functioning may be depressed. Probable lack of motivation to read in her leisure time indicates a need for stimulating her interest in reading. Since she seems to have mastered the word attack skills, practice is possibly the prime deterrent to her growth in reading. The teacher should provide her with high interest reading material and also solicit the cooperation of the parents in urging her to read. Comic books may be appropriate at this time. It is not so important at this time to be concerned as to what she reads. Developing a desire and need to read is the prime goal.

She seems to need meaningful individual drill sessions to help her acquire the fundamental computation skills in arithmetic. Use of concrete materials such as an abacus and the Cuisenaire rods would likely be appropriate. To further assist Marietta in strengthening arithmetic reasoning, such problems as "How many ways can the sum of ten be obtained?", or "How many numbers can you use in subtraction to get a remainder of two?" could be used. Charting her progress should be particularly suitable since this girl seems to compete with herself. She needs to visually see she is making progress.

Social and Emotional

Since this child is overly concerned with the progress of other pupils, the need for the teacher to continually point up her strengths and successes seems imperative. She needs to know about small increments of progress. Apparently she checks on other children because she is fearful that she is not doing well.

Case of Charles (Upper-Lower SES)

Charles, a nine year old Negro boy who is of average physical size for his chronological age, had completed the third grade at the time of the case study.

I. Diagnostic Information

Social History

Charles is the youngest child in a family of upper-lower socio-economic status. He has an older brother in the tenth grade. The father, who has a fourth grade education, has been a construction worker for the past seventeen years. The mother, who has a fourth grade education, is not employed outside the home. The family lives in a relatively new house which appears out of character in the neighborhood dominated by older deteriorating homes. Everything in the home was neat and clean in appearance and the furnishing adequate. There were no books and other intellectually stimulating materials appeared to be absent.

Medical History

Information regarding the mother's health during pregnancy, circumstances surrounding Charles' birth, and Charles' developmental history all indicate normal birth and development. He has had some of the usual childhood diseases but no serious illnesses and is in good physical health.

Information regarding the family was meager since the parents were quite reluctant to discuss information related to their private lives.

School History

Charles had prior kindergarten experience before entering the first grade. His rate of academic progress has been notably poor. During the first half of his third grade year Charles was referred for psychological testing because he was considered to be underachieving. At that time the teacher estimated his level of achievement as follows: Reading, 2.0; Arithmetic, 2.0; Spelling, 3.0; Language, 2.5; Social Studies, 2.5; and Writing, 2.5. As a result of the testing he was found to be functioning within the low average range of intelligence. He had a great deal of difficulty expressing himself verbally and was reluctant to use language. It was noted that he lacked confidence in his abilities and had a somewhat negative attitude toward school.

Early in his fourth grade year the teacher reported that Charles seemed confused and disoriented. He almost never heard or comprehended directions given to the group and was very slow in all types of work. His verbal skills were very poor which resulted in his having much difficulty expressing himself orally. In reading he had trouble succeeding with second grade material. He often distracted other children by poking, talking, or throwing. When other children reported that he had done something wrong, he would stand and look utterly confused as if he really did not know what they were talking about. Because of this behavior he was not well accepted by the other children.

Psychological Evaluation

Although cooperation throughout the examination session was adequate, Charles manifested little spontaneity in either word or action. His response to praise and encouragement was one of guarded acceptance. Charles was willing to persist on difficult items for a reasonable length of time and seemed to make a sincere effort to do his best.

On the Stanford-Binet Intelligence Scale, Charles' performance earned him an IQ of 100 indicating that he learns at a similar rate to most children of his chronological age. His mental age of 9 years and 8 months suggests that he has reached a stage of mental development wherein he can be expected to handle advanced fourth grade materials provided he has the necessary background skills and emotional stability. On the WISC, Charles attained a Full Scale IQ of 96. It is interesting to note that on the individual subtests of the WISC, Charles obtained his lowest scaled score on the information items. These items are often considered related to early environmental stimulation or education. Charles' relatively low performance on the information subtest, then, would appear to reflect a deprivation of day-to-day learning experiences to which most children are subjected. Charles did relatively well on the picture completion and picture arrangement items. The above subtests do not require verbal response on the part of the subject. The picture completion and picture arrangement subtests do, however, presuppose an internalized verbal and perceptual ability on the part of the subject in that he is required to point out missing details and arrange pictured cards to form a meaningful story. On the basis of the above subtests, then, it is possible that Charles, although he is able to

assimilate a knowledge of things and their relationships, may find it difficult to verbalize this knowledge. Such an assumption would seem to be supported on the basis of Charles' relatively low performance on the vocabulary subtest.

On the Primary Mental Abilities Test, Charles seemed to find the figure grouping tasks most difficult. These items require the child to locate the similar geometric designs from a rather complex assortment. Charles' relatively low score on the figure grouping section of the Primary Mental Abilities Test would appear to reveal a categorization weakness on his part--particularly when dealing with abstract symbolic material. In this area, his level of functioning approximates that of a seven year old. Charles also ran into trouble when required to cope with verbally loaded items. This is not surprising when one takes into consideration his limited vocabulary and low reading ability. On the verbal items of the Primary Mental Abilities Test, Charles' functioning approximates that of a child eight years old. In the numerical area this boy appears to be functioning reasonably within mental expectation indicating that his ability to handle simple arithmetic problems is comparable to that of most children of similar chronological age.

An analysis of Charles' language age scores on the Illinois Test of Psycholinguistic Abilities revealed deficits in the auditory-vocal association, auditory-vocal automatic, and auditory-vocal sequential areas. It is the examiner's opinion that this boy's low language age score (7-8) in the auditory-vocal association test reflects a vocabulary deficit on his part. This was revealed through examiner inquiry where Charles was unable to define such words as "rough", "pound", and "shallow". His low language age score of 6-6 on the auditory-vocal automatic subtest which measures how well the child has learned the elementary grammatical construction of language is not seen as a lack of learning by Charles, but rather a learning typical of his particular culture. This is exemplified by incorrect responses such as "leafs" for "leaves", "knifes" for "knives", and "thiefs" for "thieves". On the auditory-vocal sequencing test which assesses the child's ability to repeat verbally presented digits, Charles' low score may reflect a difficulty in retention of material that is meaningless to him in terms of concrete functionality.

On the reading section of the Stanford-Achievement Tests, Charles earned the following grade placement scores: Word Meaning, 1.9; Paragraph Meaning, 2.0. Additional testing revealed that Charles had marked auditory perceptual problems including discrimination and sound blending. It can be seen that this boy is, apparently, functioning approximately two and one-half years below expectancy in the reading area. On the arithmetic computation section of the Stanford Achievement Tests, Charles earned a grade placement score of 3.0. His level of functioning on the arithmetic concepts subtest is reflected by a grade placement score of 2.6. Charles' ability to handle arithmetic fundamentals is approximately two years retarded in relation to mental age expectancy.

This boy's responses to items on the creativity tests were quite sparse. Frequency of response was low and Charles revealed little flexibility by way of being able to utilize various objects in different ways. Originality of thought was lacking on all tasks. From a clinical viewpoint, Charles seemed to find the creativity test the most painful of all to take. He manifested considerable anxiety when confronted with the relatively unstructured stimuli presented.

Socially, Charles seems to perceive himself as rejected by both his peers and by significant adults in his life. He, apparently, sees people in general as quite punitive. Consequently, he finds it hard to relate to others on a more than superficial level. In order to protect an already weak self-concept, Charles tends to project the blame for both social and academic difficulties on to others. This, of course, is quite self defeating in that being unable to face his own inadequacies prevents him from correcting them and reinforces his undesirability in the eyes of others. It seems possible that Charles' attempt to defend himself by projecting blame on others may generalize to the classroom situation. If this should happen, this boy may find himself engaging in personal battles between himself and other personalities in the classroom who he feels make inappropriate demands on him. This would include both his classmates and the teacher. It is possible that any frustrating experience, either social or academic, may be met with aggressive, acting-out behavior on the part of Charles. It was noted that Charles' feelings of anger seem to be accompanied by corresponding guilt feelings. This tends to increase his anxiety and quite possibly lowers his overall level of social and academic functioning.

II. Recommended Educational Programming

Because of Charles' deficits in the various areas of his functioning in school which are considered to be directly related to his disadvantaged background, he is in need of intensive help in several areas. On the basis of the diagnostic findings, the following educational programming and procedures are indicated.

Intellectual and Psycholinguistic Abilities

Charles is limited in fund of knowledge and information which is a reflection of his deprived experiential background. Exposure to a wide variety of experiences, ideas, and concepts in school, therefore, would seem beneficial. Of course, it is of utmost importance that the material presented and/or the experiences provided be personally meaningful to Charles. With each new experience, idea, or concept, the teacher will need to help him relate and generalize these learnings to other experiences, ideas, and concepts of a similar nature. Instruction in the classroom should also be designed to help facilitate Charles' acquisition of knowledge and assimilation of information outside of school. The teacher might wish to draw attention to things and occurrences in his environment, relating them to those in school. Such devices as the discussion of certain television programs might be effectively utilized to help increase his awareness of things about him and serve as a catalyst for broadening his thinking. The task of the teacher might be complemented by eliciting, if possible, the parents assistance. Under the guidance of the teacher, the parents can assist Charles through discussions, trips, etc.

Charles' vocabulary development with respect to school expectations is markedly limited. It is suspected that as he broadens his experiences and comes into contact with new and different ideas, his vocabulary will develop at a more rapid pace--especially if he is provided intensive assistance in the labeling process. Classroom exercises involving the matching of words to definitions, selection of a proper word to fill in a missing space in a sentence, and cross-word type puzzles would seem appropriate. Certainly

Charles' level of instructional development needs to be carefully considered before activities are planned and initiated.

During the testing session Charles had difficulty expressing himself verbally which was attributed in part to his limited vocabulary development. Where he was able to respond motorically his effectiveness was increased. Whenever feasible, tasks should be provided that will capitalize on this motoric style of learning and responding. Drawing or other forms of art work, building models, displays, or some type of structure, demonstration by pantomime, etc. are some of the techniques that might be utilized to help him learn subject matter and formulate a foundation for language development. At the same time, Charles needs to develop the ability to express himself verbally. At a relatively non-threatening level he might be required to describe in some detail an object or occurrence in several different ways, using as many different adjectives as possible. This should not only help him to better express himself but increase his awareness for facets of his environment. Or, he might be given an assignment of reiterating stories, and as he progresses, be asked to discuss or give an interpretation. A non-critical "brain-storming" approach to the discussion of a topic should be another useful technique.

Achievement

Charles is retarded in reading approximately two and one-half years. A major factor contributing to this retardation would seem to be his limited vocabulary development. Methods and procedures for remediation have been discussed under the heading Intellectual. Attention must be given to his specific learning disability in the area of auditory perception. The use of the Kirk-Hegge-Kirk Drills should help Charles overcome his deficits in auditory perception and in sound blending. The classroom teacher should coordinate her work with the remedial teacher. It may be desirable initially for the classroom teacher to use the visual method of teaching reading since the usual methods of teaching phonics have evidently not been effective with this child.

Charles is about two years retarded in arithmetic when one considers his mental age of 9-8. It would appear that the teacher has to start at his level of achievement in arithmetic fundamentals using as many concrete materials as possible to help him develop arithmetic concepts. Written problems are going to continue to give him difficulty until he acquires more advanced reading skills.

Social and Emotional

Success should have a marked bearing on his self-concept. Since he has been working markedly below grade level, feelings of inadequacy have been continually reinforced. In addition, he might be referred to the social worker for group work so he can obtain some insight into why his peers reject him. The teacher likely will wish to work with the parents on how they can help Charles feel better accepted and appreciated at home. If possible, it would seem desirable for one of the parents to set aside a time to give Charles individual attention. This attention might be talking with him about a television program, about interesting happenings at school, assisting planning a picnic, etc. It would also be helpful for the parents to plan a program that would secure his peer acceptance such as inviting a classmate to dinner or to stay overnight. Since the family has a better house and furnishings than most of the classmates, Charles will need not feel embarrassed to ask a friend to his home.

John was found to be functioning within the average range of intelligence. He obtained a mental age of 7 years, 4 months on the Stanford-Binet Intelligence Scale. This was roughly commensurate with his chronological age at that time of 7 years, 2 months, and gave him an IQ score of 104. On the Wechsler Intelligence Scale for Children, John attained a Verbal IQ score of 94, a Performance IQ score of 103, and a Full Scale IQ of 98. John's vocabulary and language scores were somewhat low for his chronological age and his fund of general information seemed limited. These deficits in intellectual development appeared to be a reflection of John's deprived experiential background. It was observed that his reasoning ability was fairly good, but he had some difficulty where long sequences of events were involved. His ability to discriminate likenesses and differences between objects, symbols and events, perceive relationships, and to generalize from similar situations was found to be fairly well developed. He was able to deal with abstract concepts at a rather elementary level. In general, it appeared that John could function much more effectively in those situations where he can see and manipulate concrete objects in his learning and respond in a motoric fashion. John's effectiveness in intellectual endeavors seemed to depend on the degree of structure he was provided. He experienced some difficulty on tasks requiring divergent type thinking which might have been expected on the basis of his need for structure.

On the Stanford Achievement Test, John attained the following grade scores: Word Meaning, 1.7; Paragraph Meaning, 1.8; Vocabulary, 1.5; Spelling, 1.1; Word Study Skills, 1.8; Arithmetic, 1.5. In general, his level of achievement indicated that he is educationally retarded and can expect to experience difficulty in coping with second grade academic requirements. His performance on the arithmetic subtest of the Wechsler Intelligence Scale for Children suggested that the grade score he obtained on the Stanford Achievement Test is somewhat depressed, however.

Although John manifests no overt indications of social or emotional maladjustment at the time of testing, teacher reports, the child's responses to projective techniques, and contradictory statements made by the parents in describing his behavior suggest the presence of underlying difficulties. John is able to present a facade of passivity and conformity, particularly in the presence of adults and when he is not placed under pressure. His tolerance for frustration, however, is quite low and he is likely to react in an aggressive manner when he finds himself in a situation with which he feels unable to handle.

John's responses to projective tests indicate that he finds his total environment quite threatening; this would include his relations with parents, peers, and teachers. His major defense against such threats appears to be one of projecting blame on others. His feelings of inferiority are such that it is too threatening for him to allow blame or criticism to fall upon him. John is unable to take the responsibility for anything that will cast a negative reflection on him.

II. Recommended Educational Programming

The psycho-educational study suggests that John's intellectual functioning has not developed to the optimum because of cultural factors. His difficulties are further compounded by a weak ego development which prevents

him from coming to grips with his shortcomings. The indications are that he would benefit from a program that would take into consideration his specific learning deficits and his social and emotional problems.

Intellectual and Psycholinquistic Abilities

John has a marked vocabulary deficit and has a limited fund of general information. The school should make an all out effort to broaden his actual experiental background. It would appear that he needs to broaden his horizons by being taken on field trips into the community. Films and film strips, picture magazines, and illustrated books should provide him with various experiences which will add to his fund of knowledge. It will be necessary, of course, for the teacher and parents to guide these activities so that he can fully profit from them. Much discussion should take place. He should be helped to see relationships and to draw conclusions. To protect John from being overwhelmed by these experiences, the teacher and/or parents must provide him with maximum structural preparation before introducing new experiences and concepts that are foreign to him. To further insure learning and to make the learning experience as vivid and meaningful as possible, it is important that follow-up activities be provided. These follow-up activities could be discussions of what has transpired; cooperatively written stories appropriate to the activity; a bulletin board display of pictures taken during the field trip with labels; role playing; collection of pictures in a scrap book pertaining to an anticipated activity; illustrated word dictionary book, and the like.

Achievement

John's reading difficulties are confounded by his vocabulary deficit. He was poorly prepared to grasp the initial reading concepts which were so foreign to his experiential background. The teacher needs to make sure that all concepts presented in the basic reading materials are understood and assimilated by him. Use of concrete experiences and manipulative materials should help him grasp the concepts so that reading has meaning for him. In so far as possible, reading sessions should be of short duration and assignments clearly understood and limited to insure completion of the task. It should be emphasized that John must be held responsible for successful completion of assignments. Successes should be accompanied by copious praise and other positive reinforcement.

The parents should be encouraged to give him responsibilities at home in keeping with his readiness and reward him for carrying through with such responsibilities. At first he might only be required to set the table or such other simple household tasks.

Although group administered test scores suggest an arithmetic deficit, this was contra-indicated by John's performance on individually administered tests. Discrepancies in test performance may reflect difficulty in working in a group without close structured supervision.

Social and Emotional

John's social and emotional difficulties seem to reflect a basic immaturity suggestive of questionable child rearing practices stemming from overcrowded living situations and lack of guidance and understanding on the

part of the parents. The parents should be encouraged to spend more time with John. In addition to what has been suggested, the parents should be encouraged to convey to John their interest in his school achievement by talking with him about school, looking with him at the papers he brings home, supervising any homework he might have such as learning spelling words, reviewing addition and subtraction facts, and listening to him read. This will have to be done consistently, accompanied by rewards for accomplishments.

The importance of structuring John's classroom activities to insure completion and success should be re-emphasized. Plotting his progress with John may be an additional incentive for him to put forth more effort. The teacher should work with the mother to insure consistency of treatment between home and school.

CHAPTER VIII

SUMMARY AND IMPLICATIONS

Problem

Never in the history of mankind have we been more concerned about developing the talents of our human resources. At the same time we recognize that within a segment of our population, the culturally disadvantaged, a vast reservoir of potential talent is not being fully cultivated. This is particularly disarming when one considers the increased demand for highly skilled and highly educated individuals needed to meet the demands in today's society.

One possible solution of coping with manpower shortages in highly critical areas is to identify and devise educational programs which will enable culturally disadvantaged children of higher potential to raise their level of functioning to the point where they can make optimal contributions to society.

The primary purpose of this study was to investigate the strengths and weaknesses of culturally disadvantaged children through an intensive psycho-educational diagnosis so as to enable educators to design an educational program that would enhance the intellectual functioning of culturally disadvantaged children of higher potential.

To present a description of culturally disadvantaged children with higher potential, the data obtained from this study was presented involves: (1) a statistical analysis of data obtained on intelligence, creativity, psycholinguistic abilities, achievement and social and emotional development, and (2) incorporation of the data in a discussion utilizing the case study approach.

Organization of the Study

The subjects for this investigation were drawn from grades kindergarten through 6 of six elementary schools that have a high percentage of culturally disadvantaged children. The total population of these schools was 2100. Of these children 1400 were culturally disadvantaged according to Warner's Scale ratings of fathers' occupation and condition of housing.

A total of 560 children, or the top 40 per cent of the subjects, according to scores on the California Test of Mental Maturity, were referred for final screenings. Each of these children was administered the Stanford-Binet, Form L-M Intelligence Scale. Since there was an obvious relationship between the Stanford-Binet IQ, socio-economic status, and racial origin, of the children, candidates were stratified by socio-economic level, racial origin, sex and chronological age. The top 20 per cent of the children in each group according to intellectual ability were then selected for placement in the project. Two-hundred and eighty children met all of the criteria. Due to population mobility and other factors, the above number was reduced to 232.

An initial analysis of the characteristics of the subjects indicated that there was a significant positive relationship between grade placement and socio-economic status. Evaluation of the relationship revealed that through some sampling artifact or unidentified trend in the total population, the population of upper-lower to lower-lower children in the upper grades was larger than the comparable proportion in the lower grades. A smoothed proportionate random sample of subjects was subsequently selected to control for this factor. Two-hundred and three subject constituted the proportionate sample.

Methods of Appraisal

The 1960 Stanford-Binet Intelligence Test, Wechsler Intelligence Scale for Children and Primary Mental Abilities tests were used to assess the intellectual functioning of the subject involved in this study. These three measures were administered to assess the subjects' intellectual functioning and to facilitate identification of cognitive strengths and weaknesses both with respect to individuals and to the group as a whole.

Psycholinguistic abilities were measured using the experimental edition of the Illinois Test of Psycholinguistic Abilities (McCarthy and Kirk, 1961). Because of the ceiling effect, a statistical analysis was feasible only with those scores obtained by first grade subjects.

Appropriate levels of the Stanford Achievement Tests and Iowa Test of Basic Skills were administered to determine achievement levels of the subjects in the various academic areas. The Stanford Achievement Test battery was administered to all subjects with the exception of the kindergarten pupils, and the Iowa Tests of Basic Skills were given to subjects in grades four, five and six. Individual subtests were analyzed only for the portion of the total group under study for which they were appropriate on the basis of grade placement.

A test of creativity (unpublished) devised by Torrance and adapted for the Demonstration Project for Gifted Youth (Urbana, Illinois, 1963) was used in an attempt to assess the development of those constructs believed important to "creative" thinking. Scores on this instrument provide quantitative measures of Fluency, Elaborateness, Originality and Flexibility.

To determine the child's perception of his parents' attitudes, a simplified form of the Perceived Parent Attitude Scale (Ausubel, 1954) was administered. A scale to measure the child's perception of teacher attitudes was also given. The Perceived Teacher Attitude Scale was derived from Ausubel's Parent Attitude Scale, with appropriate changes and modifications. To determine the subjects' perceptions regarding peer acceptance-rejection, 50 items sampling this area were selected from the California Test of Personality. After appropriate modifications and changes to guard against response set, these 50 items were arranged serially in a Perceived Peer Relationship Scale.

The Parental Attitudes Research Instrument (PARI) (Schaefer and Bell, 1955) was administered to the mothers and fathers of the children in this study to obtain information of parent attitudes. The 110 items, according to an

analysis made by Zuckerman, Barrett, Monashkin, and Norton (1958), measure three vectors of parent attitudes: Authoritarian-Control, Hostile, Rejecting and Democratic.

As a means of assessing the subjects' reaction to frustration, the Children's Form of the Rosenzweig Picture Frustration Study was utilized. Scores obtained from this test are classified in accordance to direction of aggression (Extra-Punitiveness, Intro-Punitiveness and Impunitiveness) and reaction type (Obstacle-Dominance, Ego-Defense, and Need Persistence).

Qualitative clincal data were obtained from each subject by use of a sentence completion test and structured interview. Other personality instruments were administered as needed at the discretion of the examining psychologist. These data were utilized in the case studies.

Data Analysis

A variety of statistical procedures were used to analyze the data. Basic references for the procedures are Lindquist (1953) and Walker and Lev (1953). When appropriate, the necessary assumptions underlying each statistical treatment were taken into consideration during the analysis. For the purpose of consistency and clarity, the .05 level of significance was adopted and has been reported throughout, even though in many instances differences were significant well beyond the .001 level. According to this procedure, all statements which indicate statistically significant findings should be understood as meaning beyond the .05 level.

Results

A summary of the major findings of this study are organized into five general areas: Intellectual Abilities, Creativity, Psycholinguistic Abilities, Academic Attainment and Social and Emotional Factors.

Summary of Findings

The major findings of this study are summarized under the appropriate headings as follows:

Intellectual Abilities

1. Culturally disadvantaged pupils of higher potential (upper 20 per cent of their subgroup) scored at a markedly lower level on both group and individual measures of intelligence than the upper 20 per cent of the standardization groups.

2. Even though all children were of low socio-economic status, it was found that there was a direct relationship between scores on the measures of intelligence and socio-economic status. Children from the lower-lower socio-economic group scored significantly lower than children from the upper-lower socio-economic group.

3. Contrary to popular opinion the culturally disadvantaged children in this study manifested no difference between the scores on the performance scale and on the verbal scale of the WISC.

4. Among the WISC subscales, the subjects attained their highest scores on Similarities, their next highest scores on Arithmetic and Picture Completion, and their lowest scores on Block Design and the Object Assembly subtests.

5. On the PMA subscales, the subjects scored highest on the Verbal subscale and lowest on Space.

6. Contrary to previous studies, the intelligence quotients of these subjects either remained the same or improved with increased chronological age. Increases or improvement with age was noted in the Vocabulary and Picture Arrangement areas which it is believed reflects the effects of schooling.

7. Although there was some confounding with socio-economic status, Negroid children attained lower scores on measures of intellectual ability than did Caucasian children.

8. There were no significant relationships found betwen sex and subtests of intellectual abilities with the exception that girls scored higher on the Vocabulary scale of the WISC and boys scored higher on Coding.

Creativity

1. Within this restricted subject population, only one of the Creativity scores (Elaborateness) was found to be related to differences in socio-economic status.

2. No significant differences in scores on measures of Creativity were found with respect to race.

3. For the subjects in this study, growth in Creativity was arrested or declined at the second to third grade levels with recovery at the third to fourth grade levels in the Fluency, Flexibility and Originality areas. Elaborateness scores, on the other hand, attained a peak at the third grade level followed by a significant drop to a relatively constant lower level through the fourth, fifth and sixth grades.

4. No significant differences were found on scores of Creativity measures with respect to sex.

5. Although there were no significant relationships between measures of Creativity and the Stanford-Binet IQ's, significant relationships were obtained between Creativity factors and the WISC Verbal IQ's, WISC Performance IQ's and WISC Total IQ's. Vocabulary and Picture Arrangement subtests of the WISC were related to all Creativity subscales.

6. In the achievement area, significant relationships were found only between Stanford Achievement Word Meaning scores and Stanford Achievement Paragraph Meaning scores and the Flexibility scale.

Psycholinguistic Abilities

1. The subjects were markedly below expectancy on all nine subscales of the ITPA when compared with expectancies established by the upper 20 per cent of the norm group.

2. These children were also significantly below the Stanford-Binet mental age expectancy in Motor Encoding, Visual Motor Association, Visual Motor Sequential and Auditory Vocal Automatic subscales.

3. Determination of strengths and weaknesses of the subjects was differentially related to the scoring method utilized (language ages or standard scores). After considering various aspects including the relationships between these two methods, it was determined that the subjects had strengths in the Visual Decoding and Vocal Encoding areas, neutral or mid-functioning in the Auditory Vocal Association, Auditory Vocal Sequential and Auditory Decoding areas and weaknesses in the Auditory Vocal Automatic, Visual Motor Association, Visual Motor Sequential and Motor Encoding areas. Thus, there is differential development in psycholinguistic abilities that appears to be both statistically and educationally significant.

4. Significant relationships were found between socio-economic status and Auditory Vocal Association and Visual Motor Sequential subtests. A partial correlation holding race constant revealed that these relationships were probably a function of race rather than SES and thus there was no demonstrated relationship between the SES and ITPA subscales within this restricted sample.

5. There was a significant relationship between race and Audtiory Vocal Association, Visual Motor Sequential, and Visual Motor Association such that Caucasian children attained better scores in these areas.

6. Although it was hypothesized that there would be a relationship between sex and the ITPA subtests, this belief was not upheld. Differential functioning associated with both race and sex may have interacted to "wash out" any relationship.

7. Relationships were demonstrated between the Stanford-Binet, WISC Verbal, WISC Performance, and WISC Total IQ and the Auditory Vocal Automatic, Auditory Vocal Association and Auditory Decoding subtests. The ITPA is related differentially to the WISC subscales such that a few of the ITPA scbscales

tap areas that are measured by the WISC subscales while others assess areas different from those measured by the WISC.s

Academic Attainment

1. A relationship was found between socio-economic status and scores on the vocabulary subtest of the Stanford-Achievement Test such that children of lower-lower socio-economic status scored lower on the Vocabulary subtests.

2. Children of upper-lower socio-economic status achieved highest in the areas of Spelling, Word Meaning and A ithmetic Concepts on the Stanford-Achievement Test. Areas of weakness were in Language and Arithmetic Computation.

3. Children of upper-lower socio-economic status were achieving on the Stanford Achievement Tests from three-fourths to one year below mental age expectancies in all areas except Spelling.

4. On the Stanford Achievement Tests children of lower-lower socio-economic status scored highest on the Arithmetic Concepts subtest and lowest on the Paragraph Meaning subtest.

5. Children from the lower-lower socio-economic group were found to be achieving on the Stanford-Achievement Test from .70 to 1.1 years below mental expectancy in all areas except Arithmetic Concepts.

6. On the Iowa Test of Basic Skills, fourth, fifth and sixth graders attained highest scores on the Capitalization subtest. Areas of weakness were on the Punctuation, Arithmetic Problem Solving and Map Reading subtests. Also, achievement in the work-study areas was found to be significantly lower than the average achievement on other subscales.

7. Fourth, fifth and sixth grade children were found to be achieving significantly below expectancy on all subtests of the Iowa Test of Basic Skills except Capitalization.

8. Children of lower socio-economic status and of Negro origin achieved as well as similar children of Caucasian origin.

9. Girls scored higher than boys on the Spelling and Arithmetic Computation subtests of the Stanford Achievement Tests. On the Iowa Test of Basic Skills, girls scored higher than boys on the Comprehension, Spelling, Capitalization, Punctuation, Usage, Graphs and References subtests.

10. Significant relationships were found between the Stanford-Binet, WISC Verbal and WISC Full Scale scores and all achievement test subscales. Furthermore, WISC Performance IQ's were

significantly related to all achievement test subscores except one. The highest relationship between achievement test scores and IQ was found with the WISC Verbal Scale.

Social and Emtoional Factors

Subjects' Perception of Attitudes of Others

1. Even though all children were of low socio-economic status, it was found that there was a direct relationship between measures of peer acceptance and socio-economic status. Children from the lower-lower socio-economic group perceived themselves as less well accepted by peers than did children of upper-lower socio-economic status.

2. Childfen of upper-lower socio-economic status perceived their parents as more accepting than did children of lower-lower socio-economic status.

3. Contrary to the usual findings, these culturally disadvantaged children of higher potential seemed to improve their attitudes toward teachers during the first six years in school.

4. There is no relationship between socio-economic status within this restricted sample and the child's perception of his teacher as accepting and valuing him.

5. Negro children feel that they are not as well accepted by their peers and parents as do Caucasian children.

6. Subjects of higher ability were found to perceive their peers and parents as more accepting than subjects of lower ability.

7. Children who perceive their parents as more accepting and intrinsically valuing, achieve better in school.

8. Children who perceive themselves as more accepted and intrinsically valued by parents do better on achievement tests. Although no relationship was found between perceived teacher attitudes and the Stanford Achievement Tests scores, there were significant relationships between perceived teacher attitudes and scores on the Iowa Test of Basic Skills. Only minimal support was obtained for the expected relationship between perceived attitudes of peers and achievement.

9. Children who perceived their teachers as more accepting and intrinsically valuing do better on achievement tests administered by the teacher.

Attitudes of Parents

1. Limited support was found for the hypothesis that positive parent attitudes enhance the achievement of subjects of this

study. Authoritative attitudes of mothers apparently have their greatest detrimental effect on younger children. As a child grows older and becomes more independent, parental influences tend to decrease and the influence of teachers and of curricular offerings may increase.

2. The findings of this study provide no support for the hypothesis that the attitudes of the parents as measured by the PARI are related to the creativity of children.

3. Hostile-Rejecting attitudes of the fathers were found to be related to perceived peer rejection. For the population studied, it would appear that rejection on the part of the father has a detrimental effect on perceived peer acceptance. There was limited evidence that hostile attitudes of fathers was related to the child's perception that the teacher did not intrinsically value him. No significant relationships were found between parents' attitudes and the children's perception of his peers.

5. Hostile-Rejecting attitudes on the part of the parents result in the child utilizing less positive ways of coping with frustration.

5. When the effects of racial group membership are held constant, there was a significant relationship between socio-economic level and the Hostile-Rejecting attitudes of mothers but not with the Hostile-Rejecting attitudes of fathers.

6. Negro parents expressed more Authoritarian-Controlling attitudes toward their children than did Caucasian parents but were not more Hostile-Rejecting.

Frustration

1. Children who score higher than others on the Group Conformity Rating Scale of the Rosenzweig Picture Frustration Study tend to perceive themselves as better accepted by peers, teachers and parents. In other words, the more the child responds to frustration in typical ways the more likely he is to perceive himself as being accepted by peers, teachers and parents.

2. The older the child, the more likely he is to respond to frustration in typical ways. The younger the child the more likely he is to react to frustration in Extrapunitive ways.

3. The Extrapunitive child feels less well accepted by his peers and parents and less intrinsically valued by his parents.

4. The Extrapunitive child does less well in Arithmetic Computation and Paragraph Meaning on the Stanford Achievement Tests.

5. Extrapunitive children tend to be of lower socio-economic status and come from homes where mothers are Hostile-Rejecting.

6. The Intrapunitive child is likely to achieve at a higher level than his peers.

7. The Intrapunitive child perceives himself as better accepted and intrinsically valued by his teachers.

8. Intrapunitive children tend to come from families where the mother is less Hostile-Rejecting in her attitudes toward child rearing than mothers whose children react to frustration in other ways.

9. Intrapunitive children tend to come from upper-lower socio-economic backgrounds and have mothers whose attitudes toward child rearing are not Hostile-Rejecting.

10. Impunitive children tend to score higher on creativity scales than those children who respond to frustration in other fashions.

11. As a child grows older, his responses to frustration are likely to become more impunitive in nature.

12. Children who are Need-Persistent in their response to frustration are likely to perceive themselves as intrinsically valued by teachers and tend to come from homes where mothers are not Hostile-Rejecting.

13. Need-Persistent children appear to do better on tasks where success and failure are readily evident.

14. The Obstacle-Dominance Scale appears to measure aspects of behavior other than those dealth with in this study.

15. Ego-Defensive children are likely to perceive themselves as less well accepted by peers and less intrinsically valued by teachers.

16. The Ego-Defensive subjects are likely to come from homes where both the mother and the father are Hostile-Rejecting in child rearing attitudes.

Implications

A summary of the implications derived from the major findings of this study are organized into five general areas: Intellectual Abilities, Creativity, Psycholinguistic Abilities, Academic Attainment, and Social and Emotional Factors.

1. Since it was found that culturally disadvantaged children of high potential (upper 20 per cent of their subgroup) scored at a markedly lower level on both group and individual measures of intelligence than the upper 20 per cent of the standardization group, it would appear that the cultural deprivation experienced by these children is depressing their intellectual functioning. If this be so, then, schools should make an all out effort to provide the necessary introvention to compensate for the lack of intellectual stimulation provided in the home and neighborhood environment and thus insure more optimal development of these children.

   The most advantageous age for intervention to take place has not yet been determined, however, the findings of this study indicate that the subjects were already deficient at age five and thus intervention should take place at least by age five, if not sooner. These findings suggest that a preschool compensatory program for disadvantaged children perhaps as young as two to three years of age even, is a responsibility that ... public schools should seriously consider assuming, on a year-round basis.

   If the findings of current research on disadvantaged infants (Kirk, 1965) indicate that it is even more advantageous to work with disadvantaged children and their parents below the age of two, it would seem worth the expenditure of funds for some agency or institution to provide such services. Such services to very young disadvantaged children might well be the best strategy to win the war against poverty.

2. An important finding of this study indicates that the lower the socio-economic level the lower the intelligence scores of the children thus adding support to the belief that factors associated with socio-economic status have a bearing on intellectual development. This knowledge suggests that an instructional program to help disadvantaged children accelerate their rate of mental growth has to be differential in nature. Teachers need to know the specific weaknesses and strengths of each child's intellectual functioning so that compensatory and remedial programs can be provided to help each child ameliorate his specific weaknesses.

   Teachers then, of disadvantaged children need the services of school psychologists to help them assess the learning problems of these children as a group and on an individual basis to help them delineate areas of weaknesses in intellectual functioning that require remediation.

It would also seem necessary for teachers of these children to have formal training to help them better understand the relationship between cultural deprivation and intellectual development and to acquire improved methods and techniques for working with this type of child.

3. In this study the subjects scored lowest on certain performance as ccmpared with verbal scales. This finding seems to imply that a compensatory program should focus not only on helping these children acquire improved verbal skills but must also emphasize performance skills. It might well be that there is a decided gap in the sensori motor development of these children which is important to intellectual development and that a compensatory program should combine both performance and verbal activities to accelerate mental growth. In other words, raising the level of these children on performance tasks may in turn raise their level of functioning on verbal tasks.

4. Contrary to the findings of other studies which indicate a decrease in IQ with age, the intelligence quotients of these subjects either remained the same or improved slightly with increased chronological age. These findings suggest that the school is providing an environment which prevents any decrease in the rate of mental growth of these children. Although the school may provide a somewhat more intellecutally stimulating environment than the home and neighborhood; still and all the school does not stimulate the development of these children to the point where they can function intellectually like the top 20 per cent of the population. One way in which the curriculum for these children may be beneficial would be to focus on helping them develop the essential skills of conceptualization, language and perception. Providing cultural experiences which are lacking in low socio-economic environments may also be important for intellectual development. The strengths and weaknesses of individual children as indicated by the subtest profiles can serve as guides to remediation.

5. Although the girls scored higher as a group on the Vocabulary Scale of the WISC and the boys scored higher on Coding, the implication of these findings suggest that compensatory or remedial measures should take into account and provide for individual differences within a framework of an over-all curriculum designed to stimulate intellectual functionings.

6. If teachers are expected to concentrate on the individual child by helping him fill in the gaps in his intellectual development, the teacher-pupil ratio will need to be small. Necessary encillary services such as the school psychologists, social workers, speech correctionists and teachers of learning disabilities should be provided, so that problems interferring

with intellectual functioning can be identified and dealt with in order that the teacher can be helped to gain the insight necessary to design an adequate program for each child.

7. The school system should provide an adequate budget for such a program so that materials of instruction designed to help children develop cognitive skills can be made readily available to the teacher. Likewise, gaps in experiences which are often reflected in lowered scores on intelligence tests may be filled in through carefully selected and planned first hand experiences such as field trips.

Creativity

1. Although no comparisons could be made between children of varying socio-economic levels because of the design of this study, many of the subjects were able to attain scores on measures of creativity that were considered to be educationally and functionally significant. Others, manifested some, but not highly creative behavior, which suggests that they have potential that has been marred by deprivation.

2. The developmental pattern of creative thinking, from grade level to grade level, is similar to that found in other studies. It would appear that activities designed to foster the creative thinking of children from other socio-economic levels might be useful for teaching these children. One caution that should be observed is that although the patterning by grade level was similar to previous studies, dips seemed to occur earlier. If creativity enhancing activities are to be adapted for use with disadvantaged children from activities developed for use with children from other socio-economic backgrounds, they have to be presented at an earlier age level. Also further investigation will probably reveal that specially designed activities and examples will be needed.

   Since these children appear to need creative activities in the classroom, special training, either in service or academic, will need to be provided for the teachers who lack the necessary knowledge and skills.

3. Since there is a relationship between creativity test scores and reading achievement, WISC Vocabulary and WISC Picture Arrangement, engaging children in verbally based creative activities might enhance verbal academic performance.

4. Awareness of the fact that creativity scores are associated with verbal functioning and achievement should prove useful to psychologists and counselors when attempting to identify children with potential for higher achievement.

Psycholinguistic Abilities

1. The need for a compensatory or remedial program in the psycholinguistic abilities areas assessed by the ITPA is indicated by the fact that the subjects were markedly below expectancy in all nine areas when compared with the upper 20 per cent of the standardization group. It may prove to be particularly advantageous if preschools for culturally disadvantaged provide educational programs with a strong emphasis on developing meaningful and appropriate psycholinguistic skills.

2. When using mental age to determine expected level of psycholiguistic development, the subjects were found to be significantly below expectancy in the Motor Encoding, Visual Motor Association, Visual Motor Sequential and Auditory Vocal Automatic areas. These findings would appear to infer that even more concentrated remediation is needed in the above-mentioned areas. Special teachers might well focus on work in the above areas where the children seem to be particularly deficient.

   Since the Visual Decoding and Vocal Encoding areas seem to be strengths of these children in so far as psycholinguistic abilities are concerned, any remedial program should use these strengths to build up weaknesses in the Auditory Vocal Automatic, Visual Motor Association, Visual Motor Sequential and Motor Encoding areas.

   The above deficits infer the necessity for a reduced class load for the teachers and possibly special teachers to assist the classroom teachers in providing intensive remediation for individual children.

3. Findings indicate that Negro children attained lower scores on the Auditory Vocal Association, Visual Motor Sequential and Visual Motor Association tests than the Caucasian children. This suggests that even more remediation needs to be provided for the Nego children in these specific areas.

4. It would appear that teachers need the help of school psychologists in determining the psycholinguistic strengths and weaknesses of these children. Likewise, psychologists can help the teacher plan remedial programs. In addition these teachers should, through formal course work and in-service training, acquire diagnostic skills so that they are more competent when providing the daily evaluations necessary to the planning of appropriate learning activities for these children.

5. Although the children's functioning of the ITPA is affected in ways, not yet fully understood, by cultural deprivation, this instrument provides one means of determining the specific strengths and weaknesses of children in psycholinguistic areas not measured by conventional intelligence tests.

Academic Attainment

1. It must be recognized that these children who are of higher ability in their subgroup are achieving markedly below their mental ages. This is of particular concern since in all probability the mental age scores are also depressed by cultural factors. This finding suggests that the present educational offering are grossly inadequate in helping these children develop their potential.

2. Since socio-economic status has such an impact on achievement educational programs must be designed to take into account the differences in children that are related to cultural factors.

3. Although the WISC Verbal Scale may provide the best prediction of present classroom functioning, the Stanford-Binet may provide a better estimate of potential functioning after an appropriate intervention program.

4. If teachers are to fully utilize test findings they must be well grounded in test interpretation and be able to implement their interpretations by providing appropriate educational experiences for culturally disadvantaged children.

5. These children were found to be particularly deficient in the work-study areas. Since work-study skills seem to be basic to independent study, the need for intensive upgrading of the current educational programs in this area is evident.

6. Not only do girls do better than boys in areas where there is a relationship between sex and achievement, but also girls tend to manifest even greater superiority at the upper elementary levels; therefore, particular attention should be devoted to developing programs that more adequately meet the needs of boys.

Perception of Attitudes of Others

1. Since children who perceive themselves as being more accepted and intrinsically valued by parents tend to do better on achievement tests, work with parents oriented toward helping them become more accepting and understanding should enhance the child's academic progress.

2. Since there seems to be a strong relationship between low socio-economic status and negative perception of parents, the need for intensive efforts to help lower socio-economic parents improve relationships with their children is indicated. Efforts might include such activities as increased home-school contact by teachers, individual and group social service for parents, family counseling service, mass media presentations, adult education classes, parent volunteer work in the classroom.

3. Apparently these children develop a somewhat improved attitude toward teachers during their elementary school attendance. Efforts should be made to enhance this trend and to capitalize on and reinforce these trends before they encounter the stiffer competition and more impersonal atmosphere of the secondary schools.

4. Experiences which lead to the development of an improved self-image for Negro children seems to be very desirable in view of their tendency to believe that others do not accept them.

5. Since there is a relationship between a positive perception of teachers and positive self growth, teachers should be selected who engender feelings of acceptance in their pupils so that pupils self-growth is enhanced.

6. Activities should be developed which bring lower class children into positive relationships with their peers so as to promote improved peer relationships and subsequent positive perception of relationships with others. Cooperative projects, group counseling, extra-curricular activities may all contribute to the development of better peer relationships.

7. Children of lower but still good ability tend to be less self-confident in the relationship with others, hence will need additional support and encouragement.

Attitudes of Parents

1. Since it appears that the Authoritarian attitudes of mothers have their greatest detrimental effect on young children, it would seem that intensive work with mothers of younger children to help them improve their child rearing practices would have a beneficial effect on children such as those in this study. It would seem to be particularly important for the home and school to develop a close working relationship during the pre-school and early elementary school years of the child. Training courses for mothers to learn to be teacher assistance on a paid basis might be one worthwhile approach to use. Mothers, hopefully through learning different ways of handling children, should be able to transfer these learningsto handling their own children.

2. Although there were no significant findings in regard to the attitude of parents as related to the creativity scores of the children, it might be that the attitude expressed by the parents during the interview was not related to the parents actual behavior. It is important that parents be helped to understand and behave in ways which encourage creative expression in their children.

3. The finding that Hostile-Rejecting attitudes of the fathers are related to poor interpersonal relationships such as reflected in perceived peer rejection seems to imply that some type of intensive service needs to be provided for fathers so that they can manifest greater acceptance of their children and thus enhance their growth of appropriate interpersonal perceptions in the children. Group and individual social case work would seem to be fruitful approaches. It might also prove to be beneficial to solicit fathers to work a portion of their time in the classroom on a paid basis. To obtain the cooperation of the father in this and similar endeavors, it might be well to seek the help of a leader or leaders in the immediate environment of the culturally disadvantaged who can exert some influence on the fathers to get them to cooperate with the school and community agencies.

   Another consideration is to employ more male teachers in schools made up largely of culturally disadvantaged children. If the male teacher is accepting of a child it may not be so damaging to him if his father rejects him. It should be noted that all teachers of the children in this study were female.

4. Since Hostile-Rejecting attitudes on the part of parents appear to result in less positive ways of handling frustration of the child, the school and social agencies should develop effective innovations for helping these parents acquire improved child rearing practices. As the socio-economic level decreases, even more intensive work should be provided for the mothers of the more severely disadvantaged in that there was found a significant relationship between socio-economic status and Hostile-Rejecting attitudes of mothers.

5. Another important implication for the findings on parental attitudes is that the school is going to have to make provisions for more intensive work with parents. Additional social workers and psychologists seem to be a must to serve as consultants to teachers and to assist in the parent education program. Teachers should seemingly be released from their teaching duties a portion of their time so that they can work with parents. The budget should provide for substitutes for teachers so that released time for teachers is feasible.

6. Since Hostile-Rejecting attitudes are a function of physical well being, adequate housing and economic security as well as a learned method of interacting with others, changing the attitudes of the disadvantaged will involve the cooperative efforts of many agencies.

1. Children who respond to frustration in typical ways tend to perceive themselves as better accepted than others by peers, parents and teachers. Atypical responses to frustration, particularly of an Extrapunitive nature, should seemingly be discouraged. Therapeutic measures should be designed to assess and ameloriate the causes of most Extrapunitive responses to frustration.

2. Because the younger children are more inclined than older pupils to respond to frustration in an Extrapunitive manner, particular therapeutic attention should be given to lower grade pupils. Efforts should be designed to help the child overcome his tendency to consistently place the blame for frustrating experiences on others and help him assume responsibility for his actions.

3. Since the Extrapunitive child feels less well accepted by peers and parents and less intrinsically valued by his parents, the need for intensive efforts to help these children to improve their social relationships is indicated. Efforts which center around ameloriating this need would include activities such as group and individual social work services, family counseling services and appropriate competitive activities.

4. Because the Extrapunitive child tends to achieve at a lower level than his peers in the tool subject areas of arithmetic computation and paragraph meaning, remediation in the above subjects seems needed. Such remediation might include the identification of the individual child's remedial needs, adjusting his program to realistic achievement levels, and structuring assignments to assure completion and success. Emphasis should be placed on helping the child assume responsibility for the successful completion of learning tasks and providing profuse positive reinforcement for appropriate behavior. The most effective modes of reinforcement will, of course, depend on what is important to the individual child.

5. Since Extrapunitive children tend to be of lower socio-economic status and come from homes where mothers are Hostile-Rejecting intensive efforts to help parent-child relationships is indicated. Family counseling, social work services, family living courses for both pupils and their parents, and parent volunteer work in the school setting may be appropriate means of improving relationships.

6. The Intropunitive child is likely to achieve at a higher level than his peers, perceive himself as better accepted and intrinsically valued by teachers and come from families where the mother is less Hostile-Rejecting in her attitudes toward child rearing. It would appear, therefore, that efforts should be

made to foster within culturally disadvantaged pupils of higher potential a realisitic acceptance of responsibility for failure and frustration. Well structured school programs emphasizing the assumption of self-direction and responsibility combined with group and individual social work services may prove beneficial.

7. The Need Persistent child does better on those tasks where success or failure is readily evident, consequently immediate "feed back" through which mistakes are clearly delineated, constructive criticism is offered and an opportunity to correct errors is provided seems to offer the greatest opportunity for success.

8. Although a certain amount of defensive behavior in the face of frustration is acceptable, children who are extremely Ego Defensive tend to perceive themselves as less well accepted by peers, as less intrinsically valued by teachers and come from homes where both the father and mother manifest Hostile-Rejecting child rearing attitudes. It would appear desirable therefore, to provide the "over-defensive" child with strong emotional support so that he can give up his inappropriate defenses. This may involve work of a therapeutic nature with the parents and/or the child but positive efforts of teachers and others can be very effective.

Needed Research

The needed research derived from the major findings of this study are summarized under the appropriate headings as follows:

Intellectual Abilities

1. Researchers should be concerned with developing and testing various educational approaches for raising the level of functioning of culturally disadvantaged children with higher potential. For example, an experimental curriculum based on the findings of a comprehensive assessment of psycho-educational functioning evaluated on a carefully controlled research basis is one approach that merits consideration.

2. There is a crucial need for the development of instruments that are more sensitive to assessing the intellectual abilities of culturally disadvantaged children, especially those with higher potential.

3. More research needs to be conducted with culturally disadvantaged children to determine the most strategic age for intervention to take place relative to increasing the rate of intellectual development. Various approaches, particularly at the preschool level, need to be developed and compared on a research basis.

4. Additional research needs to be conducted to determine the most effective and efficient ways of identifying potentially gifted children among the culturally disadvantaged.

5. Research also needs to be conducted in the area of parent education to determine how best parents may be helped to facilitate the intellectual growth of their children.

6. Since one of the major deficits in intellectual functioning of these children seems to be in th area of visual perception, studies should be designed to test the efficacy of various approaches for improving the perceptual skills of these children.

7. In-service and formal training program for teachers should be evaluated on a research basis to determine their effectiveness in accelerating the intellectual growth of culturally disadvantaged children.

Creativity

1. Development of tests of creativity that provide indentification and valid assessment of creative potential of the culturally disadvantaged are needed.

2. School programs specifically designed to foster creative expression among the culturally disadvantaged, especially those with higher potential, should also be designed and evaluated.

3. Specific child rearing practices and cultural influences which foster the development of creative expression among the culturally disadvantaged need to be identified and studied. Programs for parents designed to help them encourage the creative endeavors of their children need to be designed, initiated and evaluated.

Psycholinguistic Abilities

1. Additional studies should be initiated using instruments such as the ITPA for determining language and communication strenths and weaknesses of culturally disadvantaged children. Individual and group remedial programs based on these findingings should also be developed and tested on a research basis.

2. There is a need for additional research to determine cultural effects on the development of psycho-linguistic abilities of the culturally disadvantaged.

3. There is a need for the construction of instruments designed to make a more sensitive assessment of the culturally disadvantaged child's development in the psycholinguistic areas.

4. A wothwhile study might be one that concerns itself with the extent to which teachers can be trained to be better diagnosticians and innovators of remedial programs.

Academic Attainments

1. Since these children were achieving at a level significantly below their mental age, researchers should concern themselves with testing different approaches for raising the level of achievement of these children. Experimental curricula offerings including parent involvement, in-service training of teachers, impact of ancillary services, involvement of community agencies and selection of teachers are some of the important areas that lend themselves to future research.

2. The development and evaluation of teacher training programs geared to prepare teachers for working with the culturally disadvantaged child with higher ability is a crucial need.

3. Particular emphasis needs to be focused on the relationships of cultural factors and the achievement of boys in that culturally disadvantaged girls of higher potential achieve at a higher level than boys from the same socio-economic level. Specific areas to be researched seemingly would include factors such as motivation, self-concept, relationships to parents and to peers, impact of community factors and aspirations as they relate to sex.

4. More intensive studies of the cumulative effects of cultural deprivation on achievement as well as on intelligence is needed. Particular emphasis should be placed on certain transitional periods such as that of moving from the elementary level to junior high and from the junior high to high school.

5. More longitudinal studies need to be conducted to determine the effects of various preschool training programs on the subsequent achievement of culturally disadvantaged children of high potential.

Social and Emotional Factors

Perception of Others

1. Additional research needs to be conducted on the effects of teacher personality on the child's school adjustment.

2. The extent to which various approaches to parent education can change the perception of the child's attitudes of his parents seems to be worth consideration.

3. Assessment of the effects of various teaching methodology on the child's perception of his relationship with others is also an area that needs further investigation.

4. More percise instruments for assessing the child's perception of his relationship with others are needed.

Attitude of Parents

1. Innovative methods for working with parents of culturally disadvantaged children need to be designed and evaluated.

2. There is a crucial need for development of more adequate scales for assessing the attitudes and child rearing practices of the parents of the culturally disadvantaged.

3. Further studies should be conducted to determine the effects of various child rearing practices on the development of the culturally disadvantaged child as reflected in areas such as creativity, intellectual functioning, achievement and social and emotional adjustment.

4. Studies should evalute the effects of various types of incentives used to elicit the cooperation of parents of culturally disadvantaged children.

Frustration

1. Researchers should assess the effects of various educational programs, child rearing practices and environmental influences on the personality development of culturally disadvantaged children.

2. Attention should also be given to the development of instruments designed to assess personality components of culturally disadvantaged children.

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